# COMPUTERWORLD

**THE NEWSPAPER FOR IT LEADERS • WWW.COMPUTERWORLD.COM**    SEPTEMBER 2, 2002 • VOL. 36 • NO. 36 • $5 COPY

## Configure the Bottom Line

**FIELD REPORT**

**Software distribution and configuration management (SDCM) tools** can save you a bundle in time and personnel costs and ensure that your desktop user community is running the right application set. But you need to look carefully at the vendors and take steps to avoid common pitfalls.

**TECH CHECK:** Is totally hands-off desktop management finally here?

**COMPETITORS:** Know the differences among SDCM tool vendors.

**CASE STUDY:** Why policy decisions determined success at Telstra.

Stories begin on page 24.

## HP HIT BY LOSS, DROP-OFF IN SALES

*Results point to challenges in wake of Compaq deal*

**BY JAIKUMAR VIJAYAN**

Hewlett-Packard Co.'s $2 billion loss in its first postmerger quarter, amid weakened sales in several crucial areas of its business, underscores the serious challenges the company faces going forward, analysts said last week.

HP reported revenue of $16.5 billion for its fiscal first quarter ended July 31, compared with the $18.6 billion it would

**MERGER**

have reported as a combined company a year ago.

During the third quarter, HP ran up more than $2.4 billion in restructuring and other merger-related expenses. Excluding those charges, HP would have earned a profit of $420 million for that period.

"Throughout our first 100 days, we've kept our eye on the ball," said HP Chairman and CEO Carly Fiorina. "We're hitting our integration milestones and are on track to meet our second-half targets."

Even so, the results, which

come one year after HP announced its plan to acquire Compaq Computer Corp., reveal a disconcerting slowdown in several critical areas, said Paul McGuckin, an analyst at Gartner Inc. in Stamford, Conn.

"The performance of the enterprise systems group especially was very disappointing," McGuckin said.

Combined company revenue in that unit, which is responsible for HP's server and storage equipment, declined 22% compared with the same period last year, to $3.8 billion. HP blamed the decline on sluggish IT spending worldwide and aggressive competitive discounting.

But McGuckin said HP's problem is also related to a specific weakening of demand

*HP Loss, page 14*

## USERS CAST WARY EYE AT WEB SERVICES

*IT managers are interested but worry about immature standards, lack of skills*

**BY CAROL SLIWA**

IT professionals on an exploratory mission at last week's XML Web Services One conference here expressed keen interest in testing out new technologies to address some of their most painful application integration headaches.

But their interest was tempered by a variety of concerns, including immature and sometimes overlapping standards, the potential for differing implementations of these standards by vendors and a dearth of skills at some companies to build Web services that use standard Internet technologies such as XML and the Simple Object Access Protocol to link disparate applications.

"My nightmare would be a

standards arms race," said Chet Ensign, senior director of architecture and development services in the Newark, N.J. office of LexisNexis Group. "That's what the world does not need."

One ray of hope for attendees such as Ensign was a daylong joint presentation by two of the groups working on key Web services standards — the World Wide Web Consortium and the Organization for the Advancement of Structured Information Standards. But even though the cooperative spirit was encouraging, some

*Web Services, page 53*

**ONLINE INTERVIEW**

A co-editor of key Web services specs says web leaders are working together for the good of all. **QuickLink 32370**

## FEDS PLAN CYBERSECURITY CENTER

*White House denies it's looking to monitor data*

**BY DAN VERTON**
WASHINGTON

As the White House last week began putting the final touches on its long-awaited National Plan for Protecting Cyberspace, administration officials took issue with a press report that suggested the plan would include provisions to expand the government's data collection and surveillance.

The plan, which is scheduled to be released Sept. 18 during a ceremony at Stanford University, does include a provision to build a cybersecurity network operations center. However, a published report suggesting that the NOC would collect and examine e-mail and data traffic from major Internet service providers and other private-sector companies is misleading and inaccurate, said Tiffany Olson, an assistant to Richard Clarke,

*Cybersecurity, page 16*

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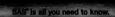
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**OUTSOURCING OVERHAULS**

Renegotiating outsourcing contracts can benefit both the user and the vendor. Johns Manville's Tom Rideout (left) describes the hurdles he encountered getting his company and its service provider to the table. **PAGE 40**

**BIG DEALS IN FLAT SCREENS**

With their prices plummeting, it's time to take another look at flat-panel displays. In this week's Hands On, we review Planar's whopping 23-in. model and an 18-in. monitor from Sharp with outstanding color. **PAGE 32**

# COMPUTERWORLD THIS WEEK

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## ONLINE

# Midrange Storage Market Booming

*Demand grows as budgets tighten and products get better*

BY LUCAS MEARIAN

IN THE MIDST of continued corporate IT belt-tightening, storage vendors are fighting one another over sales in the burgeoning midrange market as users look for small but powerful disk arrays that can centralize their storage and scale across distributed networks.

EMC Corp., Network Appliance Inc., Hitachi Data Systems Corp., Hewlett-Packard Co. and Brocade Communications Systems Inc. are all experiencing sales upticks from the midmarket, according to a report issued last month by Clinton Vaughan, an analyst at Salomon Smith Barney Holdings Inc. in New York.

As a result of the shift in demand, vendors such as EMC and Hitachi are rushing to pump up the performance of their "modular" midrange products and scale down their high-end arrays to better fit the needs of departments and mid-market companies.

For example, Santa Clara, Calif.-based Hitachi plans to introduce later this year a new storage array that will use its high-end Lightning 9900 V Series architecture but will be targeted at the midmarket. The device will offer higher performance than the Thunder 9200 array, a scaled-down version of Hitachi's Freedom Storage Lightning 9900 box, which was released last year.

EMC last month added a CX600 model to its Clariion midrange product line that targets the upper levels of the midmarket and departmental sector [QuickLink: 32095]. The Hopkinton, Mass.-based company also plans to build a scaled-down version of its high-end Symmetrix array that will be positioned above the CX600, executives said.

Because of software advances on midrange devices, IT managers "can achieve a heck of a lot of performance from a modular system at a much better price" than they would pay for high-end arrays, said Arun Taneja, an analyst at Enterprise Storage Group Inc. in Milford, Mass. (see box).

Lev Gonick, CIO at Case Western Reserve University in Cleveland, is using EMC's CX600 to upgrade from direct-attached PC storage for storing digital images and research data that the school shares with other academic and cultural institutions in the city.

Gonick considered a high-end array but last month chose to install two CX600s. The arrays are part of a 5TB storage-area network that cost $1.2 million but will let Case Western reduce its storage administration staff from 20 full-time employees to three, he said.

"We now have a sweet spot in price/performance for the core speeds and feeds we're after," he said. "But perhaps more importantly, it was our estimation that we've got, for the first time ever, intelligent software ... which many of us have been waiting for."

Bob Schultz, vice president of marketing solutions for network storage at HP, said his company has been hawking modular arrays for four years and is seeing greater traction in that market. "We see customers who previously were buying monolithic storage moving to a modular architecture," he said. ▶

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# IBM to Stop OS/390 Sales

*Offers 'bimodal migration' support for move to z/OS*

BY JAIKUMAR VIJAYAN

Mainframe users still stuck on IBM's previous-generation OS/390 operating system now have a compelling reason to switch to the current z/OS: IBM will stop new sales of the OS/390 Dec 17.

After that date, customers will no longer be able to order the OS/390, said Pete McCaffrey, an IBM director. The company will continue to support the 31-bit operating system at least through September 2004, he added.

IBM's announcement comes roughly 18 months after it started shipping the 64-bit z/OS along with its zSeries mainframes in March 2001.

The move should come as no surprise to users, McCaffrey said. "We've told customers all along that this is what we will be doing. All we did now was to essentially remind them that time was running out," he added.

To ease the migration from a 31-bit environment to a 64-bit one, IBM is offering OS/390 customers a "bimodal migration program."

Under the program, users who move to z/OS on a zSeries machine can run the operating system in 31-bit mode for six months before being required to operate it in full 64-bit mode.

The program reverses an IBM policy that mandated that users run z/OS only in full 64-bit mode on zSeries mainframes. Currently, the OS/390 can run on zSeries hardware in 31-bit mode.

Going forward, IBM will also introduce new releases of its mainframe operating systems only once a year instead of twice annually, as is the current practice, McCaffrey said. The change is being made because mainframe users have typically needed to upgrade their operating systems on 12- to 18-month cycles, he said.

Mike Kahn, an analyst at The Clipper Group Inc. in Wellesley, Mass., said the move is probably also the result of IBM trying to improve quality and cut the costs involved in refreshing its mainframe operating systems.

"It costs IBM a lot of money to introduce new features and qualify each new release," he explained. ▶

# NEWS

# ZENworks Upgrade Drops Need for NetWare Client on PCs

*Novell looks to open up its desktop management software to Microsoft shops*

**BY MATT HAMBLEN**

Novell Inc. began shipping Version 4 of its ZENworks for Desktops management software last week, with an important improvement that makes the product no longer dependent on a Novell NetWare client to manage workstations.

The new version can also be combined with Novell's ZENworks for Servers and ZENworks for Handhelds products to give network administrators a view of a company's entire user realm of desktops and mobile devices from a single console. That should make it simpler to monitor the systems and update applications, analysts noted.

Users welcomed the news. Allina Hospitals & Clinics in Minneapolis plans to roll out Version 4 in parallel with a planned Windows XP deployment to 10,000 desktop PCs, said Jeffrey Smith, a senior LAN analyst at the company.

Allina has used Version 2 of ZENworks since a Y2K readiness project in 1999 and has found it "absolutely essential" in distributing up to 700 applications to desktops since then. "In health care, there are continual upgrades," Smith said.

Allina will also be considering ZENworks for Handhelds, since mobile computing is gaining importance, but at this point Smith is more interested in the open nature of Version 4. "Previous versions forced you to use the Novell inventory database system, and now we can aim this inventory to Microsoft SQL Server instead," he said.

While Allina has roughly three times as many Microsoft-based servers as Novell-based ones, Smith said he wants to hold onto Novell's eDirectory. "eDirectory is so stable, so why reinvent the wheel? Why

not use what we have?" he said.

Matthew Krieger, assistant director of global network architecture services at The Reader's Digest Association Inc. in Pleasantville, NY, has been a beta tester of Version 4, and has Version 3 installed on 4,000 desktops in 19 countries. The open nature of Version 4 will let the publisher deploy ZENworks without the full NetWare client at Reader's Digest acquires companies that are pure Microsoft shops, he said.

Krieger said reports calling Version 4 "clientless" are inaccurate, because client software that comes with ZENworks still needs to be installed. Analysts confirmed that is indeed the case.

ZENworks 3 has been used for massive software deploy-

ments at Reader's Digest, bringing the time required for such processes down from weeks to one or two days. "The reality is that we couldn't survive without this product," Krieger said.

Ronni Colville, an analyst at Stamford, Conn.-based Gartner Inc., said it was "critical" for Novell to do away with the NetWare client. "It had been an impediment for them. Since Version 4 is a non-NetWare client, Novell might get more acceptance in pure Microsoft shops where there has been no Novell," Colville said.

Novell's directory approach is "more mature" than what Microsoft offers, she added, giving Microsoft users an incentive to consider Novell. ▪

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## JUST THE FACTS

## ZENworks for Desktops 4

**AVAILABLE** through Novell resellers for $29 per user

**INTEGRATES** with Microsoft Active Directory and Windows NT domains

**INCLUDES** Wise installation from Wise Solutions Inc. to simplify the software installation process by customizing Microsoft Installer

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## MORE ABOUT ZENWORKS

For an in-depth look at ZENworks and other software distribution and configuration management tools, turn to **PAGE 24**.

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# SBC Offers to Manage Network Quality of Service

**BY MATT HAMBLEN**

SBC Communications Inc. last week announced a managed quality-of-service (QoS) program designed to give corporate IT managers a clearer picture of their data, voice and video network traffic so they can allocate bandwidth to important applications.

The idea of network QoS isn't new, but users and analysts said having the capability offered as a service by a major network operator is San Antonio-based SBC is teaming up on the service with Waltham, Mass.-based Sitara Networks Inc., which makes a network traffic management server that will be installed between a customer's WAN egress routers and LAN switches.

SBC said it will work with users of the service to prioritize the different kinds of traffic on their networks and adjust those settings in the Sitara server as needed (see box). For example, a company could re-

serve bandwidth every Monday morning for a video or audio presentation by its CEO, while giving lower priority at that time to WAN traffic such as e-mail and file transfers.

Bill Moore, telecommunications manager at the Museum of Modern Art in New York, said that even though he isn't an SBC customer, he's impressed by the concept. "It's a service that would be very attractive to explore," he said. "The ongoing monitoring component makes a lot of sense."

The museum is building a new facility that's due to open in late 2004, and it plans to install voice over IP (VOIP) technology for the 500 end users who will work there. A service that regulates network traffic to give sufficient priority to voice transmissions at certain times would be helpful, Moore said.

Almost every major networking vendor sells VOIP gear and will initially establish

QoS settings for customers, Moore noted. But data and voice communications managers inside a company often disagree on which traffic should get priority, he said. Outside input from "impartial" SBC engineers could help resolve the differences, he added.

Moore is also president of New York-based Communications Managers Association Inc., a user group of telecommunications and data network managers at 75 companies in the Northeast. He said he expects other network operators to soon offer services similar to SBC's. VOIP is "so packet-loss intolerant that QoS is the whole ballgame," he said.

But a telecommunications manager at a New England-based insurance company dismissed the managed service idea. The manager, who asked not to be named, said his company would never trust a carrier to gain access to its network in the way SBC intends.

Michael Harris, an analyst at Gartner Inc. in Stamford, Conn., said the SBC service "is innovative and may offer interesting ways to manage traffic." But, he added, "it's unclear to me that SBC will do a tremendous business with this." Some IT managers will likely continue to solve bandwidth constraints by simply adding another T1 pipe, Harris said. ▪

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## SBC's New Offering

**HOW IT WORKS**
■ SBC establishes a customer's network traffic for several weeks and then monitors the priority priorities its data with ratings of "critical," "important" or "best effort."

■ The settings are stored in the Sitara server and used to regulate traffic. The server sends alerts to a manager if network settings can be changed.

**PRICING**
■ List pricing for the service on a full T1 connection includes a $4,000 setup charge and a monthly fee of $600. For a fractional T1 connection, the price are $3,000 and $450, respectively.

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## Corrections

■ A story in our Aug. 12 issue [...] misstated [...]

■ A story on last week's [...]

■ Also in the Aug. 26 issue, a story on IBM mainframe pricing included an incorrect title for Rich McCarthy of AFLAC Inc. He is a manager who consulted to AFLAC's IT department.

# Caldera Pushes SCO Unix to Forefront in Turnaround Bid

*Struggling software vendor renames itself SCO Group, aims to regain user loyalty*

**BY TODD R. WEISS**

IN A BID TO STOP a series of losses, Caldera International Inc. — known primarily as a Linux software and services vendor — last week said it plans to focus more attention on the once-lucrative SCO Unix business it bought two years ago.

Lindon, Utah-based Caldera said it plans to change its name to The SCO Group Inc. to take advantage of the SCO name, which is familiar to IT managers who still use the low-end Unix software.

Caldera acquired the SCO Unix technology along with the The Santa Cruz Operation Inc.'s services division in late 2000. But the firm has been hit hard during the past 12 months by weak sales and layoffs (see story). Last week, it reported a

$4.5 million net loss on revenue of $15.4 million for its third quarter, which ended July 31.

Reg Broughton, senior vice president of worldwide operations at Caldera, said the company will continue to support both Linux and SCO Unix and add new programs to help resellers expand the Unix software's market share.

**New Management**

The name change and strategy overhaul comes two months after co-founder and CEO Ransom Love left the company and was replaced by outsider Darl McBride [QuickLink: 30943].

"Now, with a new CEO and a new economy, we need to invigorate the company," said Broughton.

That may not be easy. For example, two longtime SCO

Unix users said they think the new strategy is a good one but that it comes too late for their companies — both of which plan to shift to different operating systems.

Tom Priest, the information systems manager at Coastal Transportation Inc. in Seattle, said service and support improved after Caldera took over the SCO divisions.

But the shipping company is now migrating to Red Hat Linux, Priest said. The motivators, he added, include rising licensing costs for SCO and the need to pay for special developer editions to build applications.

Roland Priest, a Unix administrator at The Pep Boys, a Philadelphia-based auto parts retail chain, said returning to its Unix roots should help Caldera retain its strongest customers. But Pep Boys is replacing SCO Unix with IBM's AIX operating system so it can use more robust servers made by IBM.

"The path has already been

set," Priest explained.

Unix software and services represented "really the only viable business model" Caldera had, said George Weiss, an analyst at Gartner Inc. in Stamford, Conn. The decision to

focus more heavily on those offerings could help the company regain the loyalty of some users, he added.

But according to Al Gillen, an analyst at IDC in Framingham, Mass., the changes at Caldera are mostly being made on the surface.

"They're trying to regain the momentum that SCO had, but that's going to be hard to do," Gillen said. "The momentum they've had in the last few years has been downhill." ◆

## CALDERA'S STRUGGLES

| September 2001 | May | June | August |
|---|---|---|---|
| Caldera lays off 8% of its workers in effort to stem losses. | The company cuts another 19% of its workforce as sales continue to lag. | CEO Ransom Love departs to head UnitedLinux venture. | Caldera revives SCO name and re-emphasizes Unix roots. |

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# Documentum Preps Updated Content Management Tool

*Version 5 adds ease-of-use features, collaboration aids*

**BY TODD R. WEISS**

Documentum Inc. next week plans to announce a new version of its namesake content management software that includes features aimed at making it easier for corporate users to organize key business data.

Documentum 5 is due to be launched at the Pleasanton, Calif.-based vendor's user conference in Orlando. The Documentum software competes with tools from vendors such as IBM, Costa Mesa, Calif.-based FileNet Corp., Toronto-based Hummingbird Ltd. and Waterloo, Ontario-based Open Text Corp.

Lubor Ptacek, director of product marketing at Documentum, said the upgrade should be easier to use and will provide improved project collaboration tools and new trusted content features designed to support encryption, single sign-on and digital signatures.

Pricing will average between $300,000 and $350,000, he said.

John Koerwer, the design automation manager at The BOC Group PLC in Windlesham, England, said the new ease-of-use features coming at Documentum 5 will be a welcome addition to a good product.

BOC Group, which makes industrial gases and other products, uses Documentum's current Documentum 4i software at 1,000 facilities across 22 countries. The content management software lets the company catalog data so it can be found at a moment's notice anywhere it's needed, Koerwer said. The upgrade should make it easier to create customized user interfaces, he added.

Wayne Aiello, vice president of e-business services at Corporate Express Inc. in Broomfield, Colo., said he expects to be able to deploy Documentum 5 to users at the office supply company without requiring costly software training.

"Documentum has always been chock-full of features, but the user interface required training," Aiello said. "Looking at what they've done [in the new release], it's a lot more user-friendly." ◆

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# Networking Devices Look to Speed XML Use

**BY MATT HAMBLEN**

Cambridge, Mass.-based DataPower Technology Inc. last week released XML acceleration hardware, the latest entry in a nascent market for specialized devices that can efficiently process XML messages.

According to DataPower, the XA35 XML Accelerator starts at $55,000. The XA35 is a diskless networking appliance that is designed to off-load XML processing from general-purpose servers.

Joshua Walker, an analyst at Forrester Research Inc. in Cambridge, Mass., said similar devices are being offered by other start-ups, such as Sarvega Inc. in Burr Ridge, Ill., and Dallas-based XMagic Software Inc.

Hemscott PLC in London is one of DataPower's beta testers. The provider of financial information began using XML two years ago to post news about large European companies in an Oracle Corp. database for Web distribution,

but Stephen Roche, Hemscott's chief technology officer, said the data transformation process was too slow.

In some cases, it would take as long as 25 seconds to convert data so the information could be sent to Hemscott — performance that Roche said was not acceptable.

Roche installed a test model of the XA35 six months ago and said it has reduced the data transformation time to approximately 1 second. ◆

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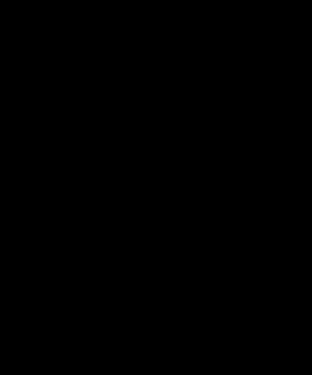
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and without any need for expensive rewiring. Intel® PRO Network Connections. **The intelligent way to connect.**

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## BRIEFS

### Sun Predicts Loss, Flat Sales for Quarter

Sun Microsystems Inc. said it continues to expect a "slight loss" for its first quarter, which ends Sept. 30. The company added that revenue will likely be similar to the $2.86 billion figure it reported for last year's first quarter. "We have not seen any improvement in the current IT spending environment," said Stephen McGowan, Sun's chief financial officer. "Some would say it might actually be worsening."

### Windows Certificates Vulnerable to Attack

Microsoft Corp. warned that attackers could remotely corrupt or delete digital certificates stored on systems running most versions of Windows due to a flaw in an ActiveX control used to request new certificates via the Web. The software vendor gave the vulnerability its highest severity rating and advised Windows users to install a new patch designed to fix the problem.

### Oracle to Release Licensing Guide

Oracle Corp. said a promised guide to its software licensing policies will be made available for download from its Web site this week. The 40-page Software Investment Guide consolidates information that previously was in separate documents. Oracle, which has faced criticism over some of its licensing policies this year [QuickLink: 28298], said the new guide should answer most questions users have about pricing.

### Short Takes

IBM said it acquired Glen Ellyn, Ill.-based TRELLISOFT Inc., a developer of storage resource management software, for an undisclosed price. . . . CISCO SYSTEMS INC. said it's adding a series of security-related hardware modules to its Catalyst 6500 Series switches.

# Utilities Go Back to Basics

## With tight IT budgets, focus is on core customer service and operational systems

BY THOMAS HOFFMAN

GAS AND ELECTRIC utilities are taking a decidedly back-to-basics approach to prioritizing their IT investments. The post-Enron effect of tumbling credit ratings, battered stock prices and lower energy trading volumes has led many firms to tighten their IT purse strings and focus on enhancing systems that support customer service and core operations.

"It's a perfect storm scenario" that's leading utilities to focus on fundamental IT projects, said Terry Kaa, vice president of energy information strategies at Meta Group Inc. in Boston, which last week published a report on North American energy utility IT spending trends.

According to the study, which is based on responses from 43 energy industry IT decision-makers, this is the first time in four years that IT spending has failed to grow faster than revenue.

As utilities focus on improving their core operations, the study said, most of the discretionary IT investments are being made in the following areas: transmission and distribution, energy trading and risk management, generation and supply, collaborative customer relationship management, and energy management.
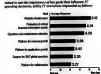
Utilities "are seeing continuous change and uncertainty, and that has affected how they're going to spend," said Jim

## IT Awaits Standard Market Design Criteria

There's a regulatory movement afoot that could significantly impact IT project prioritization by utilities in 2003 and beyond.

In late July, the Federal Energy Regulatory Commission (FERC) announced a series of sweeping changes to the wholesale electricity market aimed at fostering competition, building more efficient transmission systems, improving reliability, creating more customer options and reducing costs.

Although several independent system operators (ISO) have cropped up to form regional wholesale electricity markets over the past decade of industry deregulation, FERC is trying to create a more competitive national market for wholesale electricity under the so-called Standard Market Design.

At present, ISOs in areas such as California, New York, New England and the mid-Atlantic region are upgrading their IT infrastructures with real-time information systems "to manage real-time markets and transactions for pricing

power and transmission," said Jim Walker, an analyst at Forrester Research Inc. Under the Standard Market Design, utilities will have to interconnect their generation, transmission and distribution systems to ensure the smooth flow of power from generating stations to consumers across geographies, he said.

FERC will be gathering feedback from industry participants through mid-October. In December, it's expected to issue a ruling that will include data, software and cybersecurity provisions. Under the current FERC proposal, public utilities that own, operate or control interstate transmission facilities will have to file an implementation plan that complies with the regulations by July 31, 2003.

However PG&E CIO Roger Gray said if FERC ordered "fundamentally different business purposes" than what's in place under the California ISO, "that would have a huge business impact."

— Thomas Hoffman

Walker, an analyst at Forrester Research Inc. in Cambridge, Mass. The uncertainty also underscores why "a lot of money is being spent to improve billing systems and customer service systems," he added.

The back-to-basics approach seems to map with what energy IT leaders say they're focusing on through this year and into 2003. "My IT management team has been focused on applying technology across the company to improve customer service, increase operational efficiencies, improve reliability and safety, and to harden both our physical and cybersecurity," said Bryan Kearney, CIO at IdaCorp Inc. and The Idaho Power Co., both in Boise. "Those are the basics."

"It's a very basic approach we're taking — focusing on improving customer service, optimizing our output management capabilities and improving our work management systems, and making sure all of those systems are effectively tied together through a messaging infrastructure," said Gene Zimon, senior vice president and CIO at NStar Corp., an energy delivery firm in Boston. By integrating these efforts with a focus on data integrity and data cleanup, "we're making sure all

of the core systems work and support the business and are fully integrated," Zimon added.

Pacific Gas & Electric Co. is focusing on several "unappropriances," said Roger Gray, vice president and CIO at the San Francisco-based utility. That includes plans for a December rollout of a highly customized customer information system from Metreform, N.J.-based SPL WorldGroup Inc. that addresses California deregulation requirements, Gray said.

PG&E is installing new enterprise application integration systems this month and overhauling its primary call center system by year's end. It also plans to replace all of its major applications except its human resources system by December, said Gray. That's no small feat, considering the utility has held its IT budget in check the past few years while committing 75% to 80% of its IT spending to maintain and support its existing infrastructure.

"You just can't shut down the business," he said. "That's a huge driver." ◆

## Business Drivers for IT Investments

Asked to rate the importance of key goals that influence IT spending decisions, utility IT executives responded as follows:

| | Average Response |
|---|---|
| Reliable infrastructure | 5.12 |
| Protection of critical business information assets | 4.74 |
| Operation and maintenance reduction | 4.59 |
| Platform for revenue growth | 3.56 |
| Platform for application growth | 3.42 |
| Support for 24/7 global operation | 3.35 |
| Platform for collaboration | 3.27 |

Base: 34 senior-level IT decision-makers at worldwide utility companies
SOURCE: "INFORMATION TECHNOLOGY SPENDING AND PRIORITIES IN THE ENERGY UTILITY INDUSTRY," META GROUP INC., STAMFORD, CONN.

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# NEWS

# PeopleSoft Focusing On Integrating Apps

### AppConnect suite combines three products

BY MARC L. SONGINI
NEW ORLEANS

PEOPLESOFT INC. last week fleshed out the details of a plan to make multivendor application integration one of its major technology focus areas.

At its Connect 2002 Americas user conference here, Pleasanton, Calif.-based PeopleSoft pushed the importance of real-time application and business process connectivity throughout a company. As expected [QuickLink 32364], the strategy included the announcement of a new product suite called AppConnect that's aimed at helping users more tightly integrate data from different applications.

Focusing on integration isn't a new concept for vendors of enterprise resource planning software and other business applications. "Everybody is

### HOMELAND SECURITY

PeopleSoft has announced two software products aimed at homeland security users.

■ QuickLink: 32502
■ www.computerworld.com

talking about it," said Bruce Richardson, an analyst at AMR Research Inc. in Boston. With new software sales slowing, the logical step for companies such as PeopleSoft is to admit that "no one vendor can do it all" and offer to help users tie together applications, he said.

Peter Gassner, vice president and general manager of PeopleSoft's technology group, said the company hopes to

capitalize on the complexities of multivendor integration projects. "Application integration as it is done today is a mess, and people have gotten used to living in a mess," he said.

Gassner said AppConnect should simplify the process by combining three products — a user portal, an integration broker and a data warehouse — into one offering that supports Web services technology and works with application servers from IBM and BEA Systems Inc.

David van Wallbeburg, manager of IT applications at

PepsiAmericas Inc. in Rolling Meadows, Ill., said he has yet to fully research AppConnect. But the suite caught his eye.

"We do a tremendous amount of integration within our systems, so this product is very appealing," van Wolkenburg said. He noted that PepsiAmericas maintains more than 70 application-to-application interfaces. An application like AppConnect might simplify integration, he said.

Jim Prevo, CIO at Green Mountain Coffee Roasters Inc. in Waterbury, Vt., has yet to make up his mind about AppConnect or PeopleSoft's connected enterprise strategy.

"My intuition is that technologies that allow businesses to collaborate in a secure and private manner on a timely basis are a good thing," Prevo

### How to Use It

*PeopleSoft provided the following example of how AppConnect could be used:*

**1. THE SOFTWARE'S** integration broker could be set up to extract data from a CRM system based on Siebel applications.

**2. USING STANDARD** Web protocols and formats, the data could be made available to a customer service worker via PeopleSoft's user portal.

**3. SIMULTANEOUSLY,** the integration broker could access a PeopleSoft data warehouse and retrieve data about a customer.

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# SAP Expands Worker Self-Service Software

### Features include role-based views

BY MARC L. SONGINI

SAP AG is rolling out a set of role-based applications that it claims will help simplify collaborative processes within companies by making it easier for end users to access data related to their specific jobs.

The vendor last week announced its Employee Produc-

tivity Suite (EPS), which integrates self-service and productivity enhancement tools for managers and employees to use throughout a company. SAP said EPS users with a browser can view data from different applications in order to better synchronize their work activities with business goals and speed up decision-making.

The software links to other SAP products, such as its human resources and finance

modules, and it extracts and consolidates data for different employees. For instance, an executive can get a high-level view of business operations, while other workers can use EPS for tasks such as checking service orders, reviewing shipments or organizing work schedules.

SAP already offers self-service tools for employees as well as business managers through its human resources and financial applications. But

EPS increases the integration and visibility of data, said Sami Hero, a vice president of product marketing at the software vendor.
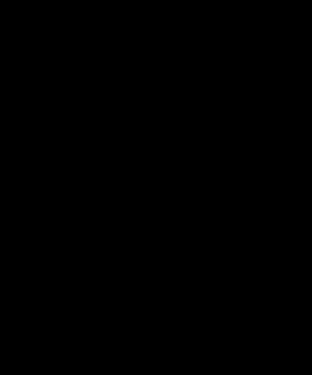
SAP isn't the only application vendor offering such employee productivity tools, said Paul Hamerman, an analyst at Giga Information Group Inc. in Cambridge, Mass. Among its rivals are San Francisco-based Plumtree Software Inc., which sells an employee services portal, and Pleasanton, Calif.-based PeopleSoft Inc., which has developed portal-based software that does things such as measure employee productivity.

Hamerman said SAP's suite appears to go beyond those products in its ability to connect to transaction systems as opposed to being solely a human resources tool. However, installing EPS would probably require "significant process change" at companies, he said.

A PeopleSoft spokeswoman said all of the company's applications are integrated within its portal software, enabling the portal to deliver data from any application to end users. ■

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# Palm, BEA Team Up to Offer Developers Mobile Tool Kits

BY BOB BREWIN

Palm Inc. continued its assault on the enterprise market last week by announcing a strategic partnership with BEA Systems Inc. that will provide developers with tools designed to make it easier to build mobile applications with BEA enterprise development software.

Last month, Santa Clara, Calif.-based Palm signed a sim-

ilar deal with IBM to develop a tool kit that works with IBM's WebSphere Everyplace Access middleware to produce mobile applications [QuickLink: Black].

Palm's tools will let developers more easily build mobile applications within BEA WebLogic Server 7 and BEA WebLogic Workshop "without any knowledge of the Palm OS," said Jody Kirkpatrick, vice

president of strategic alliances at Palm Solutions Group.

The tool kits will function as server-side controls acting as bridges between the BEA environment and the Palm OS. They will include the Palm Reliable Transport architecture, which supports connected (synchronous) and unconnected (asynchronous) devices that are synchronized with a database via a dial-up connection.

The tools will be added to San Jose-based BEA's software at no additional cost to the user, officials said.

Bernie Schroeder, chief marketing officer at Stellcom Inc.,

a San Diego-based developer that uses BEA software, said the tool kit should make it easier to develop applications for businesses that want to support workers using Palm devices. Stellcom has had to write custom software to support mobile users, he said.

Craig Mathias, an analyst at Farpoint Group in Ashland, Mass., characterized the deals as a plus for Palm in its battle with Microsoft Corp. and its Pocket PC platform. But, he said, Palm faces a struggle.

"We live in a Windows world," he said. "And the Pocket PC looks a lot like Windows." ■

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# HP, Dell Bolster Blade Server Product Offerings

## Dual-Pentium HP systems geared toward Web hosting, streaming media applications

**BY BOB BREWIN**

HP IN HIN HAND Co. last week introduced dual-Pentium blade servers, a move analysts viewed as a natural extension of the single-processor blade servers brought to market by the now HP-owned Compaq Computer Corp. in January.

Sally Stevens, director of marketing at HP's density optimized server division, said the company plans to further extend its blade product line in the first quarter with a four-processor blade server. Blade servers are complete servers on a tightly packed board that can squeeze more processing power into a standard server rack than older-generation rack-mounted servers can.

Stevens said the new dual-processor blade servers are designed to support applications such as Web hosting and streaming media. HP's single-processor servers support security applications such as Domain Name System and Dynamic Host Configuration Protocol firewalls, while the four blade servers will be able to handle back-end databases.

Philip Papadopoulos, program director for grid and cluster computers at the San Diego Supercomputer Center, said he tested HP blades in a large computer cluster. "They integrated very cleanly, and we had no issues," he said.

Papadopoulos said he believes that blade servers can help reduce cabling costs compared with the standard rack-mounted computers now used

in the center's clusters. He noted that since each blade plugs into a backplane with its own power supply and network connection, the devices can dramatically reduce the amount of cables required in a rack to just one power cable and a network cable for a chassis that can hold multiple blade servers.

Gordon Haff, an analyst at Illuminata Inc. in Nashua, N.H., said HP's new dual-processor servers represent an



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- software that provides for automated configuration and provisioning of systems
- a four-processor blade due to ship in first quarter of 2003

evolution of the company's blade server product line, adding that "in many respects, blades are an evolution of rack-mounted servers."

Just a week earlier, Dell Computer Corp. said it plans to field a line of modular blade servers next year that will allow customers to mix and match processors, memory and I/O devices. Darrell Ward, senior marketing manager for blade products at Dell, said this approach will reduce cabling and operational costs while providing customers with greater flexibility.

Stevens pointed out that HP is already shipping blade servers in considerable volume — 3,000 units in the first quarter of this year.

Even as Dell hypes its modular blade plans, Haff said he doesn't see that approach providing the company with any competitive advantage in a market that "all the major vendors plan to compete in." ■

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Continued from page 1

## HP Loss

for the company's server and storage products.

"HP lost worldwide server market share to rivals in the second quarter of 2002," he said. "I think even they may have been a little surprised at how fast Alpha server purchases, for instance, declined.

HP also saw a slowdown in its personal systems business, which was expected to be the area that would benefit most from the Compaq merger. Instead, revenue declined 19% to \$4.8 billion, with commercial PC sales dropping 15%.

Benefiting from this slowdown have been rivals IBM and Sun Microsystems Inc. on the Unix server side and Dell

Computer Corp. in the Intel server market, analysts said.

One example is a recent order for 20 Dell PC servers by Virchow, Krause & Co. The 88-employee Madison, Wis.-based auditing firm previously used Compaq servers.

"Dell was extremely aggressive in trying to lure us away from Compaq," said Allen Smith, the firm's technology director. Dell offered not only better prices, but also a faster delivery schedule for the servers, he said.

Even IT services, which HP had predicted would remain largely unaffected by the merger, saw a decline of 7% in revenue compared with levels in the same quarter a year ago.

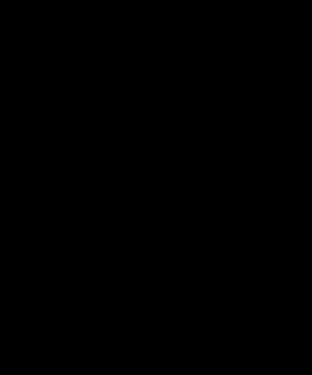In fact, the only real bright spot for HP continues to be its print and imaging systems business, said Ashok Kumar,

an analyst at U.S. Bancorp Piper Jaffray Inc. in Minneapolis. Revenue in this segment rose by about 10% to \$4.7 billion. But that alone isn't going to be sufficient to sustain long-term growth, Kumar warned.

"They clearly need to accelerate their cost-cutting, given their lack of top-line growth for the foreseeable future," he said.

HP's heavy emphasis on hardware sales is also going to make things particularly difficult for the company at a time when IBM and Sun are looking to software and services to pull in profits, said Laurie McCabe, an analyst at Summit Strategies Inc. in Boston.

HP has said that it hopes to use its OpenView software to drive new sales. But the company's recent decision to pull out of the middleware market

an analyst at U.S. Bancorp [QuickLink 31393] leaves it out of a booming and potentially lucrative business, McCabe said. ■

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# Symbol Shoots for Lower-Cost WLANs

*Switch-based architecture set to debut*

**BY BOB BREWIN**

SYMBOL Technologies Inc. next week plans to introduce what it claims is a radical change in the architecture of wireless LANs (WLAN).

Analysts agreed with the company's assessment that it has skipped past rival vendors in key features while dramatically lowering the cost of wireless networks. Symbol's strategy is to place all the intelligence, including security and management, on a central switch and turn wireless LAN access points into simple access ports with only a radio and an antenna.

Gary Singh, senior vice president of Holtsville, N.Y.-based Symbol, said the company's new Mobius WLAN architecture will be easier to install and manage and cheaper than competing products, since the access ports cost $279 vs. just under $1,000 for an enterprise-level access point.

He said the cost of a Mobius WLAN system, which Symbol plans to introduce at the Networld+Interop conference in Atlanta, should cost about $10,000 less than a system the same size that uses traditional access points.

### Nothing New?

While Singh touted Mobius as a "total revamp" of existing WLAN architectures, Lynn Lucas, marketing director at Sunnyvale, Calif.-based Proxim Inc., said it sounds much like the Harmony WLAN product line her company introduced in 1999. Lucas said Harmony uses a distributed architecture, with management of access points and security provided by a central controller. ReefEdge Inc. in Fort Lee, N.J., also uses the controller approach.

But analysts said Symbol's

Mobius architecture has leapfrogged the competition. Chris Kozup, an analyst at Meta Group Inc. in Stamford, Conn., said Mobius "is more feature-rich than Harmony. Symbol has a more tightly integrated solution." Plus, he noted, Symbol has a cost advantage with its access ports.

Kozup said Mobius will give Symbol leverage to shift its WLAN focus from vertical markets — such as wireless systems to support bar-code scanning applications at United Parcel Service Inc. and FedEx Corp. — to enterprisewide markets. He said Symbol, which hasn't yet landed a beta customer, could "give Cisco a run for its money."

Ken Dulaney, an analyst at

Gartner Inc. in Stamford, said Mobius represents a significant change to WLAN architecture that will "embarrass" Cisco Systems Inc. But in order to compete with Cisco in the enterprise WLAN market, Symbol will need to find a strong partner, Dulaney added, suggesting Dell Computer Corp. as a good candidate.

A Cisco spokeswoman said it is company policy "not to comment on competitor announcements."

While Kozup called Mobius "impressive," he said the real test will come with deployment. "I'm skeptical of vendorspeak," he said. ▮

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## Cybersecurity

chairman of the President's Critical Infrastructure Protection Board and the principal force behind the strategy.

Olson said the published report is necessarily inaccurate because the plan hasn't even been finished.

"There were many initial drafts, and many organizations provided input," she said. "But we've just started to finalize it this week."

The concept of developing a federal NOC is definitely in the strategy, but not with the aim of gathering e-mail data or expanding government surveillance, Olson said. Rather, the federal NOC would be modeled after the Bethesda, Md.-based SANS Institute's Incidents.org Web site and Internet Storm Center, a virtual organization of advanced intrusion-detection analysts, forensics experts and incident handlers from across the globe.

Howard Schmidt, co-chairman of the Critical Infrastructure Protection Board, said the plan is to simply ask for greater voluntary data sharing on matters such as viruses and worms. He also stressed that establishing a central NOC isn't part of a plan to increase the government's surveillance of private data.

Schmidt said the need for a central government NOC stems from the lack of a single collection point where government security can be analyzed. This central NOC would collect data from other government NOCs, such as the FBI's National Infrastructure Protection Center and the Pentagon's Joint Task Force for Computer Network Defense.

These NOCs, in turn, would function in a fashion similar to the private sector's Infor-

### Plan Preview
*The forthcoming National Plan for Protecting Cyberspace will focus on the following:*

■ Home and small-business users

■ Outreach efforts targeting companies in critical economic sectors, as well as state and local governments

■ Higher-education programs designed to expand the pool of IT workers with a security discipline and to encourage universities to conduct needed research and development

■ Enhancing the need for greater security with the need to protect privacy and civil liberties

■ Working with other countries to bolster underlying critical infrastructure infrastructures

mation Sharing and Analysis Centers (ISAC) — alliances formed within vertical industries to improve information sharing about security vulnerabilities and threats.

The SANS Storm Center uses advanced data correlation and visualization techniques to analyze data collected from more than 3,000 firewalls and intrusion-detection systems in more than 60 countries. "We're hoping the [ISACs] one day establish their own independent Storm Center network," said Alan Paller, director of the SANS Institute.

And that may be much easier to do now that Redwood City, Calif-based Check Point Software Technologies Ltd., which operates more than 63% of all firewalls worldwide, is adding a Storm Center client in every one of its 260,000 gateways, said Paller. "That means anyone who wants to set up a Storm Center network can just tell their members to turn on the client and point it to their network node," he said.

### A Work in Progress

Although "sworn to secrecy" about the specific contents of the administration's plan, Harris Miller, president of the Arlington, Va.-based Information Technology Association of America, said last week that the plan remained "in a state of flux" and that any information made public to date "may or may not still be in the doc-

ument when it is released."

The Bush administration also plans to release a revision of the forthcoming plan as early as January, Schmidt said during a recent press briefing at the White House. The revision will include details on "definitive programs," he said. In addition, plans call for another seven town hall meetings to be held around the country after the Sept. 18 release, to gather more feedback from both the private sector and the general public, he said.

Officials underscored the voluntary nature of the public/private partnership, noting that the White House isn't legally capable of forcing any sort of data-sharing agreements on private-sector segments on the private sector. What the government can and plans to do, however, is "create government security," said Schmidt.

In an interview with *Computerworld* last month, Clarke said the plan may include a governmentwide policy that requires all IT purchases to be independently certified for security prior to approval. Such a policy, which is currently in effect at the Defense Department, was being "looked at carefully," but at that point no decision had been made, he said. ▮

# NEWS

# Unisys Offers Device to Pool Data on SANs

BY LUCAS MEARIAN

Joining the move toward storage virtualization, Unisys Corp. last week announced a hardware appliance that pools data from different disk arrays installed on a storage-area network (SAN) and lets the information be managed as if it were coming from a single source.

Unisys' Storage Sentinel is a RAID controller packaged in a refrigerator-size cabinet with 2TB of internal disk storage. The system can be used to centralize storage management procedures on a SAN, and includes data snapshot, striping and mirroring capabilities that work across storage devices made by different vendors, according to Unisys.

The Blue Bell, Pa.-based vendor said a standard configuration of Storage Sentinel costs $200,000. The appliance itself accounts for about 75% of the cost, and the price also includes a set of consulting and implementation services.

"The professional services were important to prove out why we're in this space," said Jim Thompson, director of the Eastern Development Laboratory at Unisys. The services include SAN design, project management, and network and system implementation.

## Complicated, But Better

Bob Passmore, an analyst at Gartner Inc. in Stamford, Conn., said start-up vendors such as DataCore Software Corp. in Fort Lauderdale, Fla., Falcon-Stor Software Inc. in Melville, N.Y., and StorageApps Inc. in Bridgewater, N.J., are using middleware to offer storage virtualization capabilities on SANs.

But Passmore added that the approach taken by Unisys differs in that Storage Sentinel is set up outside of a SAN's main data path, enabling storage managers to take snapshots of data for backup purposes without having to shut down any servers. In the long term, that "is a better architecture, if perhaps a more complicated architecture," Passmore said.

Storage Sentinel is due to be released this week and will initially support Unisys' ES7000 and ClearPath Plus servers, as well as other systems running Windows NT 4.0, Windows 2000, Linux and Sun Solaris. The device includes a pair of redundant Fibre Channel switches made by San Jose-based Brocade Communications Systems Inc., as well as a built-in Ethernet switch.

Storage Sentinel complies with the Mountain View, Calif.-based Storage Networking Industry Association's Common Information Model, which specifies a consistent way of mapping the devices on a SAN. Tape storage virtualization capabilities are due to be added next year, Unisys said. 🌐

PATRICIA KEEFE

# Uncle Sam Wants You

**N**EARLY ONE YEAR after the Sept. 11 attacks, we're still grappling with the issue of cybersecurity. What to do about it. What to look for. How to track. How to analyze the data.

The government is on the verge of releasing a report, due Sept. 18, that addresses those questions on a grand scale. It will contain many mandates for federal agencies and CIOs. But it will also attempt to position the private sector as an important contributor to this plan.

We've already been a Republican administration lay down regulations in response to corporate scandals. Last week, the SEC adopted rules regulating how quickly executives must disclose key company information, report their own stock trades and certify corporate financial reports. The resounding themes here are disclosure and assigning responsibility.

In a similar vein, some in Congress argue that the government should use the SEC to force companies to come to the table on security. This could take the form of forcing businesses to include security certifications in their annual statements or as a requirement to be listed on the stock exchange. However, no legislation has been proposed.

While the president's senior adviser on cybersecurity, Richard Clarke, has repeatedly stated that there will be no new regulations attached to the draft National Strategy to Secure Cyberspace, it is clear he does want the private sector to help batten down the security hatches. To get that cooperation, the Bush administration is considering Freedom of Information Act exemptions for companies that report security breaches.

Clarke's office denied a published report last week that businesses will be asked to disclose, among other information, the identity of their IT security audit companies and the steps taken to secure their enterprises. That's good, because it's foolish to require companies to reveal specifics about their security practices and procedures. That information should be kept confidential, especially given that there are no guarantees that federal databases (and laptops!) are secure.

However, the plan does offer some recommendations worthy of exploration by IT. For example, private-sector IT should adopt minimum standards for ensuring product security and agree to purchase only "certified" products.

It makes sense for the government to centralize the gathering of information on cybercrime. Corporations should be willing to contribute to that data flow. In fact, IT departments should implement a similar approach.

But just collecting data isn't enough. "You have to know what's a real attack or you can become your own worst enemy. By not having the correct analysis, you might turn off or block legitimate traffic and kill your own business process — all because you thought you were under attack. Most companies don't have a solid policy for that sort of thing," *Computerworld* security reporter and author Dan Verton told me.

Since Sept. 11, there have been some powerful IT stories, especially from the financial sector — stories of recovery and planning for future attacks. But those actions haven't been widespread. Many corporations remain reluctant to spend money on security and still don't have comprehensive security policies and procedures in place.

The Bush administration is hoping to change that. Clarke is trying to nudge private-sector IT into a partnership with government to help fight a cyberwar. This is where you have to decide what you can do for your country without compromising the confidentiality and needs of your company. How will corporate IT answer the call? ◗

PIMM FOX

# Drivers Steer Success of IT Dashboards

**A**GILENT Technologies' recent ERP woes aren't a result of failed IT, but, like similar ERP mishaps, they indicate problems related to the initial planning and design of a complex system. Primarily, business managers sometimes forget that cost-looking executive dashboards bursting with data are no substitute for managing fundamental company processes.

Last month, when the semiconductor and communications test equipment said it lost money during the quarter largely because of problems with its ERP system [QuickLink: 32361], it was hardly a surprise to learn it wasn't all the fault of the vendor, Oracle. Last year, Nike tried to blame i2 Technologies for glitches in its $400 million supply chain management system that caused the shoemaker to miss profit estimates. But a deeper look revealed a set of customization and back-end integration problems. In 1999, Hershey Foods had a similar fiasco when it rushed to implement SAP's R/3 system.

These snafus reveal more than just the complexity of trying to connect ERP systems to legacy applications across a wide range of financial activities; they demonstrate how dependent senior business managers have become on IT systems to force-feed their view of a company's financial health.

This is worrisome, given that these technologies must be customized and re-engineered to accommodate specific corporate processes while being tested and refined. IT is a tool for businesses to be more efficient and competitive: it shouldn't be viewed as a panacea to protect companies from poor business judgment.

As IT departments assume the core

" WE WERE GOING TO TEACH THE ENTIRE IT DEPARTMENT TO SPEAK IN UNDERSTANDABLE TERMS, BUT WE DECIDED IT WOULD BE CHEAPER TO HIRE AN INTERPRETER INSTEAD. "

responsibility for organizing financial and operational information, inevitably they will bear the brunt when bottlenecks and breakdowns occur.

But is a better, more IT-centric executive dashboard building over with information a substitute for knowing how to actually do business correctly?

The example held up by dashboard advocates is Wal-Mart. At the end of each business day, Wal-Mart managers can electronically access reports to discover best-selling products, learn about inventory levels and measure returns. This is powerful information, but retailers are experienced at gathering this type of data; IT simply enhanced a prevailing concept already done well.

Business leaders should make business decisions based on experience and understanding of the marketplace and let IT craft intelligent, efficient and cost-effective ways to implement those decisions — not the other way around.

Relying too heavily on the executive dashboard without knowing the right way to steer the business is like driving while staring in the rear-view mirror. It looks like it makes sense, but a crash is unavoidable. ◗

## DAVID FOOTE
# Info Security Job Boom Inevitable

HISTORY IS RICH with examples of bright minds missing important trends that, in retrospect, appear almost ridiculously obvious. Bill Gates, for one, misjudged the Internet's impact so badly in the first edition of his book *The Road Ahead* in 1995 that subsequent editions required substantial face-saving rewrites.

So it's not necessarily surprising that most IT workers don't see the Next Big Thing in IT careers — information security. But I think I know what's behind the myopia and what's driving the enormous upside potential for security jobs.

Information security is strengthening through a major transition, expanding its focus to include protecting the virtual as well as the physical perimeter. And it's tough to sell insurance against security-related catastrophes to stressed-out business executives fixated on earnings, market share and customer satisfaction.

Security execs frequently complain about lack of support for new security initiatives and the limited authority to get things done. Add to this the new demands to prove the effectiveness of security programs. Then there's the friction between the security staff, the CIO and development teams. The truth is, information security has long been managed in an ad hoc fashion with little done to formalize criteria that would make it a bona fide profession.

However, if pay is an indicator of the future, change is afoot. Base pay for corporate IT security jobs grew 3.1% in the past 12 months, while average IT pay declined nearly 6% overall, according to my firm's most recent quarterly compensation survey. Bonuses for security professionals climbed an average of 9.9%, but bonus pay for IT jobs overall dropped a steep 34%. Premium pay for security certifications is up a whopping 23% since the first quarter of 2001, even though overall technical certification bonus pay declined 1% in that period. We expect security pay to continue to outperform the market.

Security budgets have been spared the drastic cost-cutting plaguing IT. That's because companies are spending billions on e-business infrastructure and development and will continue to do so for years. Gartner analysts, for example, predict $288 billion in online revenues by 2006, up from $72 billion in 2001.

Protecting corporate networks is a top priority today, but it's easy to imagine data protection and privacy concerns also gaining serious attention as e-business models mature and security breaches multiply in frequency and severity. And budgets will certainly improve if the economy ever does.

Beginning in late 2003, employers will be much more aggressively recruiting security professionals with the right combination of skills, knowledge, experience and character, as I have discussed previously [QuickLink: 21597].

While technical security skills and network expertise will always be in demand, a red-hot market will explode for managers with a broad view of security and the ability to think strategically, adroitly navigate corporate politics and create systems for entire organizations. And soon colleges will confer information-security degrees that blend information security, communications and psychology.

It's a great time for all IT professionals pondering their futures to consider the security profession, especially while barriers to entry are low. If you're a downsized security worker with experience and certifications, don't be discouraged — your on-the-job experience will place you well ahead of the swarm of new entrants soon to gravitate to the field. ◗

# READERS' LETTERS

## The Limits of Self-Tuning

THE ADDITION of self-tuning features in DB2 Versions 8 may sound like a godsend to some, but I wonder how knowledgeable DBAs feel about it [QuickLink: 3564]. While I have no DB2 experience, I do have eight years as an Oracle DBA. Self-tuning gives the appearance of eliminating a lot of work, but if a DB2 DBA's day is anything like mine, very little of it on average is devoted to tuning the database. Modern RDBMSs work pretty well. The self-tuning hype is actually directed at the IT executives DBAs work for. When their applications run faster, the database, because it isn't "tuned properly." Research's common sense, experience and lots of empirical evidence point to the actual culprit being a poor understanding of how databases work on the part of developers. Poorly written applications are the bane of the

DBA. So, will a self-tuning database make it possible for corporate America to cut head count on those expensive DBAs? Not likely: someone will have to manage those self-tuning features.
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## Office Fallacies

THE PRICING for StarOffice is very attractive, but not as attractive as that of the completely free OpenOffice from OpenOffice.org [QuickLink: 38930]. Still, I find the incompatibilities in both to be a showstopper. I gave my 12-year-old son an old laptop for school projects, and purchasing Microsoft Office was cost prohibitive. Everyone else is using Office at home, though, and he sees some format incompatibilities. If StarOffice/OpenOffice aren't ready to handle a kid's simple school reports, they're definitely not

ready for the prime time of charging money for them. Here's the bottom line: If Microsoft put out a product of this quality, we'd be roasting it over the coals in your very pages. Where are the fires for Sun and open source to get them in lock step with what customers need?
**Ernie Oporto**
Systems administrator
Verage Logic Corp.
Clinton, N.J.
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## Back Doors Already Here

UCITA opponents really should do more digging before they lament about software back doors [QuickLink: 31992]. As a technology security professional, I watch software tools called "NetsurePrets" tattle on users, systems and other devices. I'm also concerned that the evidence I've seen in my career has shown that the public is so woefully uninformed about back doors as to be negligent. Each day when we remount our servers after verification of the image, we see hundreds of pings that would most assuredly give software vendors an exact copy of every registry of every system attached to our network. So the provisions of UCITA that people are having the most trouble with are just about to place now. The only difference is that the software companies can't just shut off your software. They can already see you, and just about everything you do.
**Gregory A. Hensley**
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# TECHNOLOGY

## NICHOLAS PETRELEY
# Singularly Vulnerable

THERE'S AN OLD THREE DOG NIGHT SONG that goes, "One is the loneliest number that you'll ever do." In enterprise computing, there are times when one is the riskiest number you can ever do. The architects of Unix, Java and related systems have known that for a long time, which is one reason why these systems provide features not in a single program, but rather as separate processes that talk to each other over network protocols. That makes these multipronged systems a little more difficult to develop for but far more difficult to crack.

For an example of what happens without those complications in the architecture, look to the most recent batch of security vulnerabilities in Microsoft software that have surfaced over the past weeks. Attackers can use a SQL query to overwrite just about any file on your system, thanks to a flaw in the design of SQL Server. It also came to light that you can trick Windows applications to do just about anything by sending standard Win32 API messages to these applications (see http://security.tombom.co.uk/shatter.html). And you can exploit design flaws in Microsoft's Office Web Components to gain administrator-level access to someone's computer simply by embedding an ActiveX control in your Web page.

This is a never-ending story, folks. It's almost impossible to enumerate all the reasons why Microsoft seems to get security wrong in areas where everyone else seems to get it right. The mistake made by Microsoft critics is that they focus on the buffer overflows and specific security holes. Microsoft's design flaws go much deeper than that. The problem with Microsoft is that it integrates where others isolate.

For example, SQL Server has this "cool" feature that lets you create a Dynamic Link Library (DLL) in any language and then use a SQL command to load and run that DLL as a stored procedure. As it turned out however, Microsoft's own out-of-the-box DLL-based stored procedures were vulnerable to buffer overflows, which made every installation of SQL Server open to attacks consisting of little more than a cleverly designed SQL query. Another SQL Server vulnerability allowed you to bypass all security checks on stored procedures simply by calling one stored procedure from another.

In both cases, Microsoft traded the safety of isolation for the convenience of inte-

gration. Here's a better way Microsoft could have provided developers with the ability to run DLLs as stored procedures: Separate and isolate the process by creating a middleware product that runs custom DLL stored procedures. When you issue a query, it communicates the request to the middleware, which loads and runs the DLL with reduced privileges. Better still, run that middleware on another virtual or physical machine, which will provide you with even more isolation and safety. Finally, force every stored procedure to acquire its runtime permissions from yet another server process, such as an authentication server, and run that on yet another isolated virtual or physical machine.

These suggestions probably sound paranoid to a typical Windows developer or user, but this is precisely how a lot of Unix-based software is designed to work from Square 1. Even the graphical user interface on a Unix system is broken into two pieces, an X client and an X server, each of which can run with different privileges.

Security through multiple tiers and isolation is also one reason why I am very impressed with the Sun ONE architecture. It's no accident that the Sun ONE range of products reads like a feature list, not a product list. If you run Sun's directory server, metadirectory server, identity server, authentication server, portal server, Web server and other processes in isolated environments, you increase the security of your system dramatically, because you can't easily use one process to crack a weakness in another. If you wrapped all those features into one software product — or, worse, a bundle of software products that share DLLs on the same machine — you'd end up with an interdependent mess of server processes that can steal each other's privileges at the drop of a hat. ▶

# Configure Me This

### TECH CHECK

Software distribution and configuration management (SDCM) tools initially targeted the automation of application software deployments and updates. Now, vendors focus on the entire PC life cycle, seeking to give desktop support groups their Holy Grail — the ability to deliver a machine, install the base operating system image, layer on the application sets, and provide ongoing updates, self-healing features and support without touching the hardware.

The traditional approach to SDCM, using imaging software to manage desktops, doesn't scale well because a unique image must be maintained for every desktop hardware and software configuration. A software update or service pack forces reimaging of all machines, which can easily take an hour or more per computer. Software distribution tools make the process more efficient by layering application sets on top of a stripped-down baseline image — or in some cases eliminating the imaging step altogether.

The savings in staff time are substantial, says Matthew Krieger, associate director of global network architecture services at The Reader's Digest

Association Inc. in Pleasantville, N.Y. "A help desk guy with benefits is going to cost you $100,000 per year," he says.

In addition, most tools now work with enterprise directory services, such as Microsoft Corp.'s Active Directory (AD), to enable customized application distribution based on the user's role, location or business unit. The move from machine-based to directory-based application deployment means users always get what they're entitled to when they log on, says Ronni Colville, an analyst at Stamford, Conn.-based Gartner Inc. But, she cautions, the degree to which the tools work with AD has yet to be fully proven in the field because of the limited number of AD deployments.

SDCM vendors claim they do it all, but most rely on third-party relationships to complete the PC life cycle picture. This includes tools for creating the baseline disk image, application packages that customize the installation process for each program, and personalization software that adds user-specific attrib-

### By Robert L. Mitchell

utes, such as browser bookmarks. But the distribution software often serves as the management umbrella, coordinating all steps in the process.

In addition to the ability to push applications out to users, some products include a self-service feature that lets users pick from a menu of optional applications. Many vendors have also begun rolling in support for mobile devices and personal digital assistants, which used to require third-party add-ons. And while many products allow management of clients outside the corporate firewall, not all have the capabilities required to support remote business partners or customers, Colville says.

One technical glitch: In large-scale rollouts, network bandwidth can be an issue. However, with some products, updates "trickle down" to PCs for later execution on the local machine, and most allow CD-based distribution of updates. Microsoft's new Background Intelligent Transfer Services application programming interface, introduced with Windows XP, could become a de facto standard for bandwidth throttling, as well as for checkpoint/restart (so interrupted deployments can continue where they left off) on Windows desktops.

But the barrier to successfully using SDCM tools isn't entirely technical. Many attempts fail because of a lack of upfront preparation and established desktop management policies. "No tool is going to make a company that has really [lousy] disciplines around asset management and desktop management into a star," says Krieger, who's migrating 4,000 desktops to Novell Inc.'s ZENworks. "We spend an incredible amount of time packing out documentation and standards. That's the bulk of the time, not the technical implementation."

And that preparation should include an application inventory, says Jodi Folkert, packaging programmer analyst at Zeeland, Mich.-based furniture maker Herman Miller Inc. By consolidating its application base from 450 to 120, Herman Miller greatly simplified the deployment process across its 8,000 PCs. "That's a real cost-saver," she says.

### DOES OUTSOURCING WORK?

Some elements of software distribution should stay in-house.

**QuickLink: 32312**

**Distribution tool book:** Visit our online list of software distribution resources

**QuickLink: 32311**
www.computerworld.com

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## Sorting Out the Software Distribution Tools

### COMPETITORS

Software distribution features can be found in enterprise management frameworks, such as IBM's Tivoli Configuration Manager and Computer Associates International Inc.'s Unicenter, as well as in desktop management suites like Microsoft Corp.'s Systems Management Server. The latter includes software distribution as well as inventory, software metering and remote control functions.

In contrast, best-of-breed prod-

ucts, such as Novadigm Inc.'s Radia, tend to have more advanced features but cost more than broader offerings, says Ronni Colville, an analyst at Gartner Inc. in Stamford, Conn.

Novadigm, Marimba Inc. in Mountain View, Calif., and ManageSoft Corp. in Nashua, N.H., excel at providing software distribution services to business partners and customers outside the corporate firewall, says Colville.

Novadigm also supports a broad range of client types, while other

firms may be more limited. Wal-tham, Mass.-based On Technology Corp.'s On Command CCM, for example, specializes in deployment of Windows clients, but the vendor is working on Linux support, said a company spokesperson. CCM's "preOS agent" will fully automate deployment of new PCs without the need to first create an operating system image. The technology leverages Intel Corp.'s Preboot Execution Environment (PXE), a function embedded in most PCs that can be used

for remote installation of both the operating system and applications.

Novell Inc.'s ZENworks for Desktops 4, which was released Aug. 27, is perhaps one of the most advanced software distribution tools because of the way it leverages directory services. A new feature, ZENworks Synergy, has a portal interface that lets users access their Windows desktops from any Web-connected PC. Version 4 also abandons the requirement for an IPX client and supports updates via HTTP.

# TECHNOLOGY

## Tips for a Successful Software Distribution Project

**1**
**REDUCE COMPLEXITY**
Cut project time by first reducing the variety of desktop hardware, operating systems and applications.

**2**
**SET POLICIES**
Establish policies and standards for desktop management before bringing tools into the picture.

**3**
**BUILD A DIRECTORY**
Software distribution tools are more powerful when they leverage profiles set in Active Directory or equivalent network directories.

**4**
**SET EXPECTATIONS**
Users must understand that some lockdown of the desktop is required to maintain consistency and stability.

**5**
**ALLOCATE STAFF**
Software distribution tools may reduce help desk costs, but trained staff must create and manage policies, package applications and manage those new tools.

### DEPLOYMENT SNAPSHOT

## The Home Depot Inc., Atlanta

**INTERVIEWEE:** Stan Alexander, vice president of information services.

**WHO THEY ARE:** Building supply retailer

**GOAL:** To fully automate management of PCs in retail stores, from initial deployment to ongoing configuration management and support. Must be able to perform unattended rebuilds of corrupted machines without on-site technical support.

**STRATEGY:** Install Wellham, Mass.-based On Technology Corp.'s ON Command CCM master server in Atlanta, with remote distribution servers in each store. Ship PCs from vendors with a blank drive and Intel's preboot execution (PXE) partition enabled. Configure CCM to detect machines on PXE boot-up, display a menu of machine profiles, with identifying information such as "point machine," and perform an unattended install of Windows and all related applications and device drivers on the target machine. Use CCM to remotely manage, update and rebuild 50 to 80 machines in each store as needed.

**CHALLENGES:** Alexander wanted to eliminate using imaging technology, which required maintaining different baseline images for each system. CCM's admin unattended install option could run through the entire install process instead of downloading a static image, allowing it to detect hardware variances and load the appropriate drivers. "It gave us the ability to be hardware-independent," he says.

**ISSUES:** Alexander says that so far, the company hasn't experienced any problems.

**PAYOFF:** Home Depot has used CCM to deploy 1,000 new systems. Alexander plans to roll the technology out to all 20,000 PCs in February. At that point, the company should no longer need to dispatch technicians to stores for software-related issues.

**COMMENTS/ADVICE:** "CCM focus is clear. It's optimized for Windows operating system management and installation. It really deals with laying down the OS well and ... being able to remotely trigger that rebuild."

## Breaking From the Past

**CASE STUDY**

Telstra relied on a homegrown software distribution program, until it became a victim of its own success. "It got so good that everyone developed apps and distributed them," says Andrew Knight, national manager of infrastructure technology at the telecommunications company. In time, the number of applications ballooned to an unmanageable 1,500 across 40,000 desktops in 850 locations.

In November, Telstra upgraded to Mahwah, N.J.-based Novadigm Inc.'s Radia, which deploys applications through 20 distributed staging servers and allows software distribution and management through firewalls. Now Knight says, "We don't go to the desktop anymore to do anything unless it's broken."

Initially, Telstra tried to use the old software distribution methodologies with the new technology. "There were procedures that everyone did and said they had to keep doing. We did a few things badly, which ended up costing us a lot of time in terms of how we packaged and distributed software," Knight says. But with new procedures, distribution times have been reduced from 10 weeks to as little as a few hours.

Using Radia, Telstra creates a base image that includes the operating system. Microsoft Office and a few utilities. It then layers on the appropriate line of business applications

based on the user profiles in Active Directory.

Telstra's PC vendors already ship machines with the base image preloaded. Next, Knight plans to install Radia staging servers at supplier sites to enable them to do the rest of the work. The servers will communicate to the Radia infrastructure through a virtual private network to obtain user-specific configuration data and download software. The machine will then be shipped to the end user, who can plug it in and start working.

Knight says the project's success hinged on people issues. "Our biggest challenge was getting the business units to accept the change," he says, adding that such acceptance was critical.

## Telstra's Software Distribution Process

Telstra leverages Active Directory policy data for users and groups to determine each user's software configuration. Radia agent software running on a host desktop or personal digital assistant (PDA) (1) sends user information to a configuration server (2), which makes a Lightweight Directory Access Protocol (LDAP) call to the Active Directory server to retrieve the configuration information data (3). A host server (4) then deploys the appropriate applications. Radia uses a separate server to inventory each user's software configuration (5). Administrators access the system through a Web interface (6).

# Configure Me This

## SDCM Tools

**FIELD REPORT**

Software distribution and configuration management (SDCM) tools can orchestrate everything from initial system imaging to automated software deployment, configuration management updates. However, most rely on third-party products to pull the pieces together. Today, SDCM tools top enterprise distribution for rule-based software distribution, allowing automatic updates to application suites when a user's responsibilities change. But administrators confess that the tools must be built on proven desktop management policies and you need talented staffers to manage them.

By Robert L. Mitchell

**TECH CHECK**

Software distribution and configuration management (SDCM) tools initially targeted the automation of application software deployments and updates. Now, vendors focus on the entire PC life cycle, seeking to give desktop support groups from Help Desk the ability to deliver a machine, install the base operating-system image, layer on the application sets, and provide ongoing updates, self-healing features and support without touching the hardware.

The traditional approach to SDCM, using imaging software to manage desktops, doesn't scale well because a unique image must be maintained for every desktop hardware and software configuration. A software update or service pack forces remapping of all machines, which can easily take an hour or more per computer. Software distribution tools make the process more efficient by layering applications sets on top of a stripped-down base-line image — or in some cases eliminating the imaging step altogether.

The savings in staff time are substantial, says Matthew Krieger, associate director of global network architecture services at The Reader's Digest Association Inc. in Pleasantville, N.Y. "A help desk guy who benefits is going to cost you $100,000 per year," he says.

In addition, most tools now work with enterprise directory services, such as Microsoft Corp.'s Active Directory (AD), to enable customized application distribution based on the user's role, location or business unit. The move from machine-based to directory-based application deployment means users always get what they're entitled to when they log on, says Ronni Colville, an analyst at Stamford, Conn.-based Gartner Inc. But, she cautions, the degree to which the tools work with AD has yet to be fully proven in the field because of the limited number of AD deployments.

SDCM vendors claim they do it all, but most rely on third-party relationships to complete the PC life cycle picture. This includes tools for creating the baseline disk image, application packagers that customize the installation process for each program, and personalization software that adds user-specific attributes such as browser bookmarks. But the distribution software often serves as the management umbrella, coordinating all steps in the process.

In addition to the ability to push applications out to users, some products include a self-service feature that lets users pick from a menu of optional applications. Many vendors have also begun rolling in support for mobile devices and personal digital assistants, which used to require third-party add-ons. And while many products allow management of clients outside the corporate firewall, not all have the capabilities required to support remote business partners or customers, Colville says.

One technical glitch in large-scale rollouts, network bandwidth can be an issue. However, with some products, updates "trickle down" to PCs for later execution on the local machine, and most allow CD-based distribution of updates. Microsoft's new Background Intelligent Transfer Services application programming interface, introduced with Windows XP, could become a de facto standard for bandwidth throttling, as well as for checkpoint/restart (so interrupted deployments can continue where they left off) on Windows desktops.

But the barrier to successfully using SDCM tools isn't entirely technical. Many attempts fail because of a lack of upfront preparation and established desktop management policies. "No tool is going to make a company that has really [lousy] disciplines around asset management and desktop management into a star," says Krieger, who's migrating 4,000 desktops to Novell Inc.'s ZENworks. "We spend an incredible amount of time pushing out documentation and standards. That's the bulk of the time, not the technical implementation."

And that preparation should include an application inventory, says Judi Folkert, packaging programmer analyst at Zeeland, Mich.-based furniture maker Herman Miller Inc. By consolidating its application base from 450 to 120, Herman Miller greatly simplified the deployment process across its 8,000 PCs. "That's a real cost saver," she says.

**DOES OUTSOURCING WORK?**
Some elements of software distribution should stay in-house.
**QuickLink: 32312**

**Distribution tool book:** Visit our online list of software distribution resources.
**QuickLink: 32311**
**www.computerworld.com**

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## Sorting Out the Software Distribution Tools

**COMPETITORS**

Software distribution features can be found in enterprise management frameworks, such as IBM's Tivoli Configuration Manager and Computer Associates International Inc.'s Unicenter, as well as in desktop management suites like Microsoft Corp.'s Systems Management Server. The latter includes software distribution as well as inventory, software metering and remote control functions.

In contrast, best-of-breed products, such as Novadigm Inc.'s Radia, tend to have more advanced features but cost more than broader offerings, says Ronni Colville, an analyst at Gartner Inc. in Stamford, Conn.

Novadigm, Marimba Inc. in Mountain View, Calif., and Managed Soft Corp. in Nashua, N.H., excel at providing software distribution services to business partners and customers outside the corporate firewall, says Colville.

Novadigm also supports a broad range of client types, while other firms may be more limited. Wal-tham, Mass.-based On Technology Corp.'s On Command CCM, for example, specializes in deployment of Windows clients, but the vendor is working on Linux support, said a company spokesperson. CCM's "preOS agent" will fully automate deployment of new PCs without the need to first create an operating-system image. The technology leverages Intel Corp.'s Preboot Execution Environment (PXE), a function embedded in most PCs that can be used for remote installation of both the operating system and applications.

Novell Inc.'s ZENworks for Desktops 4, which was released Aug. 27, is perhaps one of the most advanced software distribution tools because of the way it leverages directory services. A new feature, ZENworks Synergy, has a portal interface that lets users access their Windows desktops from any Web-connected PC. Version 4 also abandons the requirement for an IPX client and supports updates via HTTP.

DEPLOYMENT SNAPSHOT

## Tips for a Successful Software Distribution Project

**1**
**REDUCE COMPLEXITY**
Cut project time by first reducing the variety of desktop hardware, operating systems and applications.

**2**
**SET POLICIES**
Establish policies and standards for desktop management before bringing tools into the picture.

**3**
**BUILD A DIRECTORY**
Software distribution tools are more powerful when they leverage profiles set in Active Directory or equivalent network directories.

**4**
**SET EXPECTATIONS**
Users must understand that some lockdown of the desktop is required to maintain consistency and stability.

**5**
**ALLOCATE STAFF**
Software distribution tools may reduce help desk costs, but trained staff must create and manage policies, package applications and manage new tools.

## The Home Depot Inc., Atlanta

**INTERVIEWEE:** Stan Alexander, vice president of information services.

**WHO THEY ARE:** Building supply retailer

**GOAL:** To fully automate management of PCs in retail stores, from initial deployment to ongoing configuration management and support. Must be able to perform unattended rebuilds of corporate machines without on-site technical support.

**STRATEGY:** Install Walthan, Mass.-based On Technology Corp.'s ON Command CCM master server in Atlanta, with remote distribution servers in each store. Ship PCs from vendors with a blank drive and Intel's preboot execution (PXE) function enabled. Configure CCM to detect machines on PXE boot-up, display a menu of machine profiles, with identifying information such as "paint machine," and perform an unattended install of Windows and all related applications and device drivers on the target machine. Use CCM to remotely manage, update and rebuild 50 to 60 machines in each store as needed.

**CHALLENGES:** Alexander wanted to abandon using imaging technology, which required maintaining different baseline images for each system. CCM's native unattended install option could run through the entire install process instead of downloading a static image, allowing it to detect hardware variances and load the appropriate drivers. "It gave us the ability to be hardware-independent," he says.

**ISSUES:** Alexander says that so far, the company hasn't experienced any problems.

**PAYOFF:** Home Depot has used CCM to deploy 1,000 new systems. Alexander plans to roll the technology out to all 20,000 PCs in February. At that point, the company should no longer need to dispatch technicians to stores for software-related issues.

**COMMENTS/ADVICE:** "CCM's] focus is clear. It's optimized for Windows operating system management and installation. It really deals with laying down the OS well and ... being able to remotely trigger that rebuild."

## Breaking From the Past

CASE STUDY
Telstra Corp.

Telstra relied on a homegrown software distribution program, until it became a victim of its own success. "It got so good that everyone developed apps and distributed them," says Andrew Knight, national manager of infrastructure technology at the telecommunications company. In time, the number of applications ballooned to an unmanageable 1,500 across 40,000 desktops in 850 locations.

In November, Telstra upgraded to Mahwah, N.J.-based Novadigm Inc.'s Radia, which deploys applications through 20 distributed staging servers and allows software distribution and management through firewalls. Now

Knight says, "We don't go to the desktop anymore to do anything unless it's broken." Initially, Telstra tried to use the old software distribution methodologies with the new technology. "There were procedures that everyone did and said they had to keep doing. We did a few things badly, which ended up costing u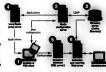s a lot of time in terms of how we packaged and distributed software," Knight says. But with new procedures, distribution times have been reduced from 10 weeks to as little as a few hours.

Using Radia, Telstra creates a base image that includes the operating system, Microsoft Office and a few utilities. It then layers on the appropriate line of business applications

based on user profiles in Active Directory. Telstra's PC vendors already ship machines with the base image preloaded. Next, Knight plans to install Radia staging servers at supplier sites to enable them to do the rest of the work. The servers will communicate to the Radia infrastructure through a virtual private network to obtain user-specific configuration data and download software. The machine will then be shipped to the end user, who can plug it in and start working.

Knight says the project's success hinged on people issues. "Our biggest challenge was getting the business units to accept the change," he says, adding that such acceptance was critical

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## Telstra's Software Distribution Process

Telstra leverages Active Directory policy data for users and groups to determine each user's software configuration. Radia agent software running on a local desktop or personal digital assistant (PDA) (1) sends user information to a configuration server (2), which makes a Lightweight Directory Access Protocol (LDAP) call to the Active Directory server to retrieve the configuration information (3). A local server (4) then deploys the appropriate applications. Radia uses a separate server to inventory each user's software configuration (5). Administrators access the system through a Web interface (6).



REMOTE OFFICE · · · HEADQUARTERS

# Steelcase Streamlines SAP Training

**Furniture maker turns to OutStart for learning tool that helps cut costs and train staff. By Brian Sullivan**

SCOTT VINKEMULDER's job is to make sure other people know how to do their jobs.

Two years ago, that task required a staff of 20 courseware developers and a printing budget of $30,000. Now Vinkemulder gets the job done with a staff of five, including himself, and he hasn't had to print so much as a note-card in recent memory.

Vinkemulder heads the training group at Grand Rapids, Mich.-based Steelcase Inc., where he recently had to move 2,000 of the industrial furniture maker's employees to the latest version of SAP. He achieved the accomplishment in record time, he says, using SoftSim 3.0, a training package from Boston-based OutStart Inc. over the Web.

Vinkemulder says that in the past, Steelcase relied on printed materials and complex training programs to bring employees up to speed on new application and software changes. But he disliked using printed materials, which can quickly become outdated and for which version control is almost impossible, especially in satellite offices.

The Web allows greater flexibility, but its true advantage is the ability to make changes and updates in real time. SoftSim provides that capability, Vinkemulder says.

## How It Works

With SoftSim, training materials are prepared by simply recording all the actions performed by someone using the target software. At the trainer works his way through the target application, SoftSim records every keystroke and mouse click and any other action he may make, says Gene Zylkuski, vice president of client solutions at OutStart.

A trainee then can follow that trail of actions by running SoftSim on his own machine, explains Peter Clayman.

The user will see a virtual version of the target application and watch it go through each step in its process, all of which is made possible by a Java applet that puts up the right screenshot at the appropriate time, Zylkuski says.

SoftSim allows actions to be edited or condensed where necessary to make the training easier to follow. For instance, if a trainer types the word *frag*, SoftSim initially records each letter as a separate action. When preparing the training materials for distribution, typing the word *frag* could be reduced to a single activity.

Audio and text can also be added to give extra instructions where needed, Clayman says. For instance, a voice-over could say something like, "At this point, type the word *frag*."

Users can experience the training materials in a variety of ways. They can be walked through a "show-me" mode, where SoftSim shows them each step required to complete a specific task. The training package also offers a self-test mode that records user actions. When the user is finished, SoftSim tells him if he made mistakes and, if so, what they were. The self-test mode allows companies to set minimum proficiency requirements for workers and then have a built-in method for testing them.

Vinkemulder says that Steelcase now has 70 Web-based SAP courses that can be updated whenever needed.

That is one of the big selling points of SoftSim, according to IDC analyst Michael Brennan. Companies can update older training materials as new versions of software are released. That way, if a program is only partially updated, old versions don't have to be completely discarded but can be easily altered to reflect the changes.

Vinkemulder says SoftSim allowed Steelcase to set up a help table for em-

### AT A GLANCE

## Steelcase Inc.

**OBJECTIVE:** In the short term, to train workers for a new version of SAP. In general, to improve training for Steelcase's workers by moving away from the use of printed materials and toward automated, but highly specific Web-based training.

**OBSTACLES:** Difficulty in making real-time updates for detailed software simulations and providing training materials for a large number of software applications.

**SOLUTION:** Steelcase deployed SoftSim 3.0, which has allowed the company to reduce training staff to meet the objectives.
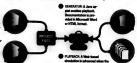
ployees that can determine which of some 25,000 possible transactions a user is making. It then matches that activity to a step in the training materials. So if someone in the call center is trying to help a client and gets stuck, he can call up the training materials while he's on the phone with the client and get an answer quickly enough to keep the transaction going smoothly.

"It doesn't solve world hunger . . . but it saves us a lot of time and money," Vinkemulder says.

All in all, Brennan says, SoftSim is a good tool for creating reusable content and helping users learn how to use a software application on their own. It may be a useful tool for organizations that see a lot of changes to applications, especially as a result of government regulations, he notes.

SoftSim costs $10,000 per developer; for a deeper level of customer support, there is an additional 18% maintenance charge. ▪

## OutStart's SoftSim Training Package



**CAPTURE ENGINE:** Automatically records all keystrokes and mouse clicks made by an application expert completing a process.

**EDITOR:** Allows trainer to add voice-over annotation, sticky-note annotation and screen-prompt annotation.

**GENERATOR:** A Java applet enables playback. Documentation is provided in Microsoft Word or HTML format.

**PLAYBACK:** A Web-based simulation is advanced when the user performs the correct action on each application screen.

PROJECT FILES

# HOW DOES
# PETER HARRINGTON BOOKS
# PLAY TO WIN?

IBM.

# HOW DOES WINNEBAGO PLAY TO WIN?

IBM.

@server

| | |
|---|---|
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# CPUs Cut The Power

**New processors will boost mobile computing performance while consuming a fraction of the power of traditional designs. By Gary H. Anthes**

When Bristol-Myers Squibb Pharmaceuticals U.K. Ltd. in Middlesex, England, first migrated its sales force to notebook PCs in 1996, two-to-three-hour battery life caused frequent interruptions during sales calls. Not surprisingly, many salespeople went back to paper presentations. That's changing today, as new low-power processors emerge that let mobile computer users do more while consuming less power.

New technologies are driving the power requirements of microprocessors ever lower — even as their capabilities increase. In the short term, users of mobile devices are

**EMERGING
TECHNOLOGIES**

enjoying longer battery life, but in the long term, these low-power designs will lead to new applications and new ways of using portable computing and communications gear.

Intel Corp., which has developed more than 50 processors just for notebook computers, recently announced its first 2-GHz mobile processor, the Mobile Intel Pentium 4 Processor-M. Intel says the CPU will enable a laptop computer to run several applications at once while also running background tasks such as encryption, compression or virus scanning.

Intel's next-generation microprocessor, code-named

Banias, will be the first designed from the ground up for notebook computers. The company says Banias will be the highest-performing and most power-efficient chip ever produced for notebooks when it debuts next year.

But Intel has no monopoly on power-saving CPUs. Advanced Micro Devices Inc. in Sunnyvale, Calif. offers low-power versions of its Athlon and Duron lines of notebook processors. And late next year, the company plans to introduce its low-power ClawHammer processor based on more energy-efficient 0.09-micron technology.

IBM's announced PowerPC 405LP features "ultra-low-power operation" for use in portable devices such as personal digital assistants (PDAs). Its ability to scale voltage and frequency almost instantaneously with the needs of the application will enable new capabilities for PDAs, such as audio and video, says Lisa Su, director of emerging products at IBM Microelectronics. "That happens in software," she says. "As soon as the song finishes, I ramp down to the lowest power consumption."

While Intel, AMD, IBM and others use power-saving techniques that are similar in concept, Transmeta Corp. in Santa

Clara, Calif. uses a different path with its "code morphing" technology. Its Crusoe processor consumes up to 70% less power than comparable Intel x86 processors and enables all-day battery life in some notebooks, Transmeta claims.

Processors that consume small amounts of power will enable tiny devices to run full-blown operating systems, such as Windows XP, and so will be able to run more applications, says David Ditzel, marketing vice president at Transmeta. And he says wireless networking is leading to new usage patterns, such as carrying a computer to meetings all day. That requires longer battery life and lighter weight.

Current power improvements were enough to convince Bristol-Myers to purchase Sony Corp.'s Crusoe-powered Vaio CIVE Picture-Book. "Our requirement was to provide five hours or so of life to the mobile sales force without recharge," says David Harst, head of IM and telecommunications. With improved processor designs on the way, Harst may just need to raise his expectations.

**POWER PLAY**
Find out why CPU power cuts aren't likely to brighten battery life.
**QuickLink: 32112**
www.computerworld.com

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## ■ POWER USAGE

### Where the Juice Goes

Chip vendors are spending millions of dollars to extend battery life by making microprocessors more power-efficient. But according to Intel, the CPU and its associated chip set account for only about 10% to 20% of a portable computing device's total power consumption. The biggest power hog is the display, which in typical cases consumes about a third of total power. Here's a breakdown of power use by a notebook PC equipped with a Mobile Intel Pentium 4 Processor-M.

14.1-in. LCD
XGA display — 27%

Rest of system — 14%

Power supply loss

Memory — 7%

Mobile Intel Pentium 4
Processor-M — 10%

Mobile Intel 845 chip set — 9%

48GB hard-disk drive — 9%

External graphics — 7%

Clock generator - 6%

DVD - 2%
WLAN - 2%

10% Intel Celeron M
Module - 5%
SDRAM - 3%

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## ■ APPLICATIONS

### Processors Cool for Blades

LOW-POWER PROCESSORS, which are important in battery-powered mobile computing devices, may play an even bigger role in blade servers. Because they generate less heat, low-power CPUs can be packed tightly together. Intel's Pentium III ultra-low-voltage CPU, used in blade servers, runs cooler than human body temperature, claims Don MacDonald, Intel's mobile platform marketing director.

Los Alamos National Laboratory in New Mexico has built its Green Destiny Bladed Beowulf cluster using 240 Transmeta Crusoe processors operating at 667 MHz. The machine has been operating without cooling fans for some 10 months in a warehouse where temperatures routinely reach 85 degrees, while computing at a peak rate of 160 billion operations per second. Green Destiny consumes less than 10% of the electricity and 25% of the space used by more traditional computer clusters of similar power, Los Alamos says.

"Low power is a good thing, no matter where you do it, plugged in or not," says Ken Dulaney, an analyst at Gartner Inc. in Stamford, Conn.

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## ■ TECH SPECS

### Chip Makers' Power-Saving Techniques

CPU designers use several techniques to lower overall power consumption. These include:

**Tighter designs:** By packing circuits closer together, designers can reduce transmission distances and power consumption. Intel's Banias processor uses 0.13-micron technology, and 0.09-micron designs are under development.

**Power management:** Intel's SpeedStep technique reduces processor frequency and voltage levels when running on battery power, while its Deeper Sleep feature reduces voltage to nearly

zero during extended periods of inactivity. The results: The Banias processor should consume between 380 megawatts and 2 watts, vs. 10 to 15 watts for a Pentium 4, according to Intel.

AMD's Athlon and Duron processors use low-voltage operations and techniques such as "clock gating," in which inactive circuits are powered down. AMD's new 0.13-micron mobile Athlon XP processor uses the chip maker's PowerNow technology, which dynamically adjusts processor frequency and voltage according to the needs of the application.

**Code morphing:** Transmeta's "code morphing" processor design repeats some instructions from hardware to software. The processor gathers statistics as it runs, and when it feels heavily

used sequences of x86 instructions, it dynamically recompiles them into optimized native code for the Crusoe processor.

**Off-loading:** Another power-saving trick involves off-loading some of the CPU's workload by embedding software functions in a separate hardware chip. As users increasingly demand compute-intensive applications, that will be one path to power savings in IBM's PowerPC 405 LP line of mobile processors, says Lisa Su, director of emerging products at IBM Microelectronics. "There are special functions we can put in hardware - encryption, speech acceleration, media acceleration and so on," Su says. "Using hardware to accelerate what is currently done 100% in software reduces overall power consumption."

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| I/O Controller Hub 3-Mobile | 5% |
| WLAN | 6% |
| Memory | 7% |
| Power supply | 14% |
| Rest of system | 27% |
| 14.1-in. LCD XGA display | |

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# TECHNOLOGY

# Big Deals in Flat Screens

**The newest batch of flat-panel monitors are bigger, better – and more affordable. By Russell Kay**

I'M SITTING AT MY DESK, looking at what must be the mother of all flat-panel monitors: a high-resolution LCD screen measuring 23.1 in. diagonally. This is so much bigger than any other monitor I have ever used that it's almost disorienting.

The WS231 from Planar Systems Inc. in Beaverton, Ore., carries a list price of $3,500 but is available for about $2,800 — or about what an 18-in. flat panel cost just three years ago. The screen's native resolution is 1,600 by 1,200 pixels, which is sometimes called UXGA, for Ultra Extended Graphics Array. It allows you to easily view two full pages of text side by side. Open up a blank Excel spreadsheet full-screen and it starts out showing you 24 columns and 57 rows.

Having so much screen real estate available actually changed the way I worked, because it allowed me to keep many more windows in view. If you've ever tried using a monitor smaller than 20 in. with UXGA video, you know that text and bit-mapped icons can be so small that they're nearly impossible to read. With the WS231's big screen, however, I could easily read the text in menus, in windows and on the desktop.

Of course, making use of all those windows and supporting the high-resolution screen cries out for a workstation with plenty of RAM and, even more important, video memory — a minimum of 8MB. My 3-year-old Dell Latitude laptop, for example, has 256MB of RAM, which is plenty, but only 4MB of video RAM. That lets me display 16.7 million colors at 1,024 by 768 pixels, but only 256 at 1,280 by 1,024.

The Latitude's video card doesn't support any higher resolutions, but even if it did handle UXGA, it would be limited to no more than 32 colors, and that much only by intensive video processing. However, when used with the 8MB embedded video card in the $199 EarthLink 1000EV from Mobility Electronics Inc. in Scottsdale, Ariz., the Latitude worked just fine.

### Smaller and Cheaper

The Planar is nice, but in a down economy and the age of $500 computers with gigahertz-class processors, only users with a true need — graphics workers, financial traders and medical doctors reading X-rays online — can justify a $2,800 monitor. Fortunately, plenty of affordable flat-panel monitors are available, albeit in smaller sizes. Since my last review of flat pan-

els [QuickLink: 21061], I've used 15- to 18-in. monitors from BenQ Corp., Envision Inc., Compaq, NEC-Mitsubishi Electronics Display of America Inc., Samsung Electronics Co., Sharp Electronics Corp. and others. Though I found clear differences among them, all were more than good enough for most applications.

This time, I tested two $350 15-in. monitors — the AOC LM-500 and the Envision EN-5100e from Fremont, Calif.-based Envision Peripherals Inc. — to see what the low-price end of the spectrum delivered. Without a side-by-side, instrumented comparison with a more expensive 15-in. monitor, I couldn't tell that I was missing anything. The bigger-name-brand monitors may be a little brighter or offer a bit more contrast, but that doesn't rule out these value lines. The $350 monitors are, for most users, just as good as the $550 units.

### The Sharper Image

I was unable to set these monitors up for a side-by-side comparison of screen quality, but as it turns out, I didn't need to. I tested the first of a new generation of flat-panel monitors from Sharp Systems of America in Huntington Beach, Calif., and it's outstanding. The 18-in., $1,299 Sharp LL-T1820B is, by a considerable margin, the brightest, crispest monitor I've ever used.

One thing that differentiates the Sharp from any other monitor is its support for 10-bit, rather than 8-bit, color. This increases

the number of colors it can accurately display from millions to billions, which really smooths out gradients and gradations in color and gray-scale images.

Your video card doesn't do 10-bit color, you say? No problem. The Sharp monitor has built-in circuitry to convert the color depth. The result in images that, depending on the originals, show increased separation in both shadow and highlight areas. Speaking as a predigital photographer, I could see that the Sharp monitor instantly and almost automatically achieves the kind of overall image in black-and-white photographs that I used to work hours to get in the darkroom.

Finally, as with many new-design LCDs, the Sharp features a very thin bezel around the screen, which makes the unit seem smaller than it is. Until the Planar behemoth arrived, I had thought that 18 in. was the optimal monitor size for computer work at a desk. From a practical point of view, I still think that's the case. At prices between $800 and $1,300, 18-in. monitors cost what the 15-in. models did a few years ago. The best of them produce a superb, flicker-free picture that's easy on the eyes and offer sufficient screen real estate to keep multiple windows open.

The big-screen Planar was an eye-opener in many ways. I will miss having it on my desk. But I will also miss the great color and smoothness of the 18-in. LL-T1820B. Were I buying one of these for my own general office needs, I'd go with the Sharp. ⊘

*Kay is a freelance writer in Worcester, Mass. Contact him at russkay@ charter.net.*

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**THE TECH EFFECT**

Some new technologies could drop big-screen prices.
QuickLink: 32166

Online Resources: For more information about these monitors, visit the following Web sites:
⊘ www.aocmonitor.com
⊘ www.envisionmonitor.com
⊘ www.sharpsystems.com
⊘ www.planar.com
⊘ www.mobl.com

Planar
WS231

# Filing It Away

**DEFINITION**

**File systems** organize and track files and associated metadata stored on disk drives to allow quick and reliable retrieval.

BY TODD R. WEISS

File systems organize the data stored on computer hard drives, keeping track of the physical locations of all data elements on disk while allowing users to quickly and reliably retrieve files when needed.

The file system acts as a digital index that lets a computer instantly find a specific file, regardless of the size or configuration of the storage drive or where the data bytes associated with the file sit on the drive's storage platters.

Every operating system, from MS-DOS to Windows 95, Windows XP and Linux, has its own file system. But although all file systems perform the same basic functions, they vary in design and sophistication.

## FAT

File systems have come a long way since MS-DOS and early versions of Windows. Those operating systems organized files under the FAT file system, which represents logical areas of the disk in allocation units called clusters, and maps the locations of file data to those areas using a file allocation table (FAT). FAT is also called FAT8 because it uses a 16-bit address space for tracking files and clusters.

FAT clusters vary with the size of the disk. FAT's 16-bit address space can support up to 65,536 clusters (2^16). With a 65MB disk, cluster sizes were just 1KB in size, but they ballooned in disk-emerged that were able to hold gigabytes of data. And since only a single file can be written to a cluster,

## QUICK STUDY

this created inefficiencies that ended up wasting as much as 50% of available space on a 2GB disk drive.

## FAT32

FAT32, which debuted with Windows 95 OEM Service Release 2 (OSR2), introduced a 32-bit address space. By increasing the size of the file allocation table, it could support more clusters that were smaller in size on large disk drives, reducing the potential for wasted drive space.

Another FAT32 innovation was that it could handle file names with up to 255 characters, whereas FAT could only handle names with up to eight characters. Users could finally create long file names to better describe the contents.

The advent of FAT32 extended the maximum addressable volume size from 2GB to 2TB and improved reliability by allowing the system to switch to a copy of the file allocation table if the default copy should become damaged. But FAT32 also added to file system overhead and was therefore inefficient to run on disks smaller than 260MB.

## NTFS

The next development in Windows file systems was

the New Technology File System (NTFS), introduced with Windows NT (which also supported FAT32). With a 64-bit address space and the ability to vary cluster size independently of the disk drive size, NTFS virtually eliminated the cluster size limitation problem.

It also brought other benefits, including file and directory security attributes, file encryption and support for storage volumes of up to 16TB and 232 clusters.

NTFS replaced the familiar file allocation table format with the Master File Table (MFT), which holds more information about files than did FAT. The MFT references all files and directories on the disk drive, including associated metadata such as security settings.

The NTFS also introduced a high level of fault tolerance. It logs disk operation activity prior to committing the transaction. If the system crashes during an update, it can examine the log file and restore the data. When read or write errors occur during normal operation, NTFS automatically identifies and blocks out the bad clusters and copies the data to a new location. Finally, NTFS creates a mirror of the MFT and can revert to the mirror should the original fail.

NTFS's overhead makes it unsuitable for disks smaller

than 400MB, and it can't be used on floppy disks. Instead, Windows must write to formatted diskettes using FAT32.

## Ext2

The Linux file system, called Extended File System 2 (Ext2), evolved to rectify limitations of Linux's original file system, Ext, which the operating system inherited from its Minix predecessor. Under the Minix file system, the maximum file system size was restricted to 64MB and file names to 14 characters.

Ext supported 2GB file systems and 255-character file names but suffered from some performance limitations. Ext2 supports 4TB file systems and 255-character file names and remedies those problems.

The Ext2 architecture uses a data structure called identification nodes (inodes) to refer to and locate files and associated data. The inode table includes the file type, size, access rights, pointers to associated data blocks and other attributes. The file system organizes disk space into groups of blocks, which contain both inode information and associated data blocks.

The Linux kernel uses the Virtual File System layer, which interacts with the file system to perform disk I/O. This gives Linux the ability to support multiple file systems, including DOS, FAT16 and FAT32 (which it supports as a native file system).

## File System Specs

| FILE SYSTEM SUPPORT BY OPERATING SYSTEM | |
|---|---|
| **OPERATING SYSTEM** | **FILE SYSTEMS SUPPORTED** |
| MS-DOS, Windows 95 | FAT16 |
| Windows 95 OSR2, 98, Me | FAT16, FAT32 |
| Windows NT, 2000, XP | NTFS, FAT16, FAT32 |
| Linux | Ext2, FAT32, FAT16 |

| FILE SYSTEM | MAXIMUM FILE NAME LENGTH (CHARACTERS) | MAXIMUM VOLUME SIZE | MAXIMUM FILE SIZE |
|---|---|---|---|
| | 8 | 2GB | 2GB |
| | 255 | 2TB | 4GB |
| | 255 | 16TB | 16TB |
| | 255 | 4TB | 2GB |

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# No Good Policy Should Go Unbroken

**New enforcement of an old policy reveals that just about everyone bends the rules. By Vince Tuesday**

W HEN I JOINED my current company, one of my first acts was to roll out a password-protected screen saver to every desktop, with the timeout set to 15 minutes. That way, if someone was called away from his desk without closing an application, confidential information wouldn't be indefinitely displayed for all to see.

Getting this change agreed to and rolled out was a nightmare. Everyone wanted a change to the time or the screen saver software. To get everyone on board, I let users vote on the screen saver images to display and the timeout period.

Eventually, we configured a Windows NT policy enforcing a 15-minute timeout and set the screen saver at log-in. After a week or so, I was surrounded by a sea of screen savers, all displaying the most popular corporate logo. This tiny part of the enormous task I faced in tying down security at my company was complete. It was the beginning of a cultural change toward acceptance of security controls.

Or so I thought.

### The Enforcer

We recently migrated from Windows NT Server 4 to Windows 2000 with Active Directory, which offers many cool security features, including the ability to apply policies to desktops predictably while a user is logged in. So I asked that our standard policy, including the screen saver timeouts, be deployed to desktops every hour. As everyone al-

ready had the policy set by NT 4 when they first logged in, I didn't expect it to be an issue.

I soon discovered my mistake. Many people had been logging in and immediately changing the screen saver timeout period to suit their work habits. The new enforcement flushed them out.

I expected to get a flood of people asking us to set the timeout to 999 minutes. But the first to complain were a group of paranoid security freaks who were setting the timeout to one minute. They were terrified of walking away for a moment and leaving others to log-in and steal their sessions.

To set different policies for these users within Active Directory, however, we would have to move them into separate organizational units. We weren't eager to split each of our current units into normal and screen-saver-security-freak subgroups.

Instead, I suggested that these users hit the Ctrl-Alt-Del keys and press Enter to lock their screens when leaving

> I thought this disaster of enforcing an established policy was over. Then the CEO's personal assistant phoned me . . .

their desks, and I offered a few memory-jogging techniques to help them remember to do so. I also encouraged them to form pacts with their nearest co-workers to lock each other's screens as needed.

### What About E-Mail?

A second set of complaints came from our developers, who have two machines: one for writing code and one for e-mail and administrative work. They want to know when e-mail arrives while they are working on code, and the screen saver timeouts have been getting in the way. Since they are at their desks, no security risk exists, but our system has no way of telling whether a user is at his desk.

I have one hope to save the day: Windows 2000 Server Resource Kit Supplement One, which is supposed to contain a transparent screen saver. This will stop anyone from modifying confidential information but will let the user see the arrival of new e-mail. This is perfect for our developers, and it will also work nicely for the few machines that display monitoring statistics. There's just one problem: Microsoft didn't include the files on the CD-ROM. I've asked my contact at Microsoft to send them over, but he told me it could take some time.

I thought the disaster of thoroughly enforcing a previously established and approved policy was over. Then the CEO's personal assistant phoned me and explained that the CEO didn't want the screen saver either. "What if he goes away for a half-hour meeting? When he gets back, he'll have to log in again," the assistant said.

"Yes, that is the idea," I replied.

"Would you like to explain it to him yourself?" he coun-

tered. Yes, I replied, and asked him to set up an appointment.

I guess I shouldn't be intimidated by that suggestion, but I've met our CEO and he's very reasonable. I was sure that once I explained everything, he'd be happy to keep the screen saver. His assistant didn't want to give me that chance, however, and immediately started phoning my management chain, complaining about me and asking for me to be put back in my place.

After much flapping and several meetings, I was able to repair the damage. Apparently I'd been seen as arrogant by not doing exactly what the CEO's personal assistant wanted. In my experience, senior staff rely on personal assistants for all IT services. Perhaps this fellow had found himself having to walk into the CEO's office to unlock the screen every 15 minutes.

We have a formal dispensation process to get around policies that don't meet business needs. In the end, the CEO said he was willing to follow that process in order to avoid having to enter the screen saver password a few times a day, so now he doesn't have a screen saver. One might say that this is silly, that it undermines support for my team, that it exposes his data to risk. After all, if it isn't good enough for him, it isn't good enough for us, right?

On the other hand, he's not just anyone. His personal assistants guard the office well, and he has closed-circuit TV and locked doors. These physical controls mitigate the risk of someone gaining access.

I'd thought the screen saver battle had been won months ago. But if the easy battles are this hard, what will the difficult ones be like?

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JOHN BERRY

# Turning a Profit on IT

A METRIC EVALUATING THE PERFORMANCE of IT is more than just a metric when it becomes a habit of mind for managers who ask such questions as, "How will this technology investment increase shareholder value?" Rare is the CIO who asks this question, unless that CIO happens to use economic value added (EVA), a financial performance measure.

A trademarked term of global consulting firm Stern Stewart & Co., EVA's provenance arises from economic thinking more than 100 years old, arguing that accounting profits — earnings — provide an incomplete and sometimes misleading picture of a company's financial performance. The argument extends far beyond the alleged fraud and misrepresentation of Enron and WorldCom; honest companies with clean books will report earnings increases. But sometimes the full financial story isn't as sunny.

EVA is used to argue that capital deployed for any project or corporate strategy — including IT — isn't free and that its cost must be discounted in the cost/benefit analysis of the particular investment. The economic argument is that unless a company earns a return beyond its cost of capital, it's destroying wealth for shareholders, not creating it.

A company can be reporting solid earnings, yet the return on capital deployed to generate those earnings are in a free fall. More dollars must be spent to generate lower returns on the investment. Earnings, the offspring of accounting, fail to reflect the wealth-generating or -destroying capacity of the company, which EVA, the monster child of economics, takes into consideration. The precise calculation can be found at www.sternstewart.com under "About EVA."

Consider the implications of IT investment assessment. A simple example: A $100,000 investment will produce quantifiable benefits of $20,000. ROI is 20%. However, this total overstates benefits because the capital costs aren't included. Suppose the company's cost of capital is 12%. A $12,000 (12% times the investment cost — in this case, $100,000) charge must be factored from the $20,000 "profit." The EVA here is $8,000. This calculation works for any kind of IT investment.

Using the same example, suppose the quantifiable benefits are $10,000, for a 10% ROI. The cost of capital is 12%. Here, the EVA is negative $2,000: $10,000 minus

$12,000. This project destroys wealth.

Under EVA, IT, the single largest asset base for some service firms, is held just as accountable for the generation or the destruction of wealth as any other capital investment, such as buildings, machines or research and development. (Under EVA, R&D is capitalized, not expensed. The reasoning is that R&D has the potential to generate future wealth beyond a company's cost of capital.) Does a negative EVA mean that the company should take a pass on the project? Technically, yes.

But as is the case with everything in IT, the real answer is more nuanced. Companies will sometimes invest in technology despite a negative EVA because the investment is necessary, and because many benefits are very difficult to quantify upfront. A domestic company transformed into a global player by virtue of acquisition needs an industrial-strength human resources system to replace an existing one that is less scalable and has far fewer administrative features — despite a negative EVA.

Then why use it? Evidence has shown that EVA, when mapped to the proper employee compensation scheme, is a powerful motivational tool, a reminder to managers for the need to place focused, shrewd bets anytime company money is spent in service of operational or strategic goals.

Unfortunately, it is unlikely that the EVA approach will work if implemented in the IT organization autonomously. EVA is designed to change the way managers think about the allocation of labor and capital to reach profitability goals across the entire organization. A company that doesn't acknowledge EVA's importance because it doesn't use it — and there are many — will hardly be impressed by the IT manager who uses it during investment assessment.

This isn't to suggest that a CIO who has the ear of the boardroom can't suggest taking the time and effort to embed EVA companywide. It might be one of the most valuable investment suggestions he can make. ▶

AFTER THREE YEARS at Johns Manville Corp., Tom Rideout has accumulated his share of war stories.

He was recruited by the $2 billion Denver-based building materials supplier in 1999 to manage some IT outsourcing contracts that were already in place. Bad blood between the internal IT department and the vendors of those contracts had been brewing for years. It was Rideout's job to make things right.

"We're talking about the wheels falling off," Rideout recalls. The contracts were plagued by soaring out-of-scope costs, poor service and unmet objectives, he says.

By 1998, two years before the financials and logistics mainframe services outsourcing contract with Broomfield, Colo.-based (I)Structure Inc. was due to expire, (I)Structure had proposed a renegotiated contract that would climb from $3.8 million in the first year to $4.17 million in the fourth year. Rideout, however, negotiated a new contract with (I)Structure that went from $2.8 million to $2.2 million over four years, saving Johns Manville $4.77 million.

"If you have a bad relationship, you don't have to live with it," he says. "There are things you can do about it."

### Forging a Partnership

But turning a large, troubled five-to 10-year outsourcing contract into a successful one requires that a client use both his and the vendor's side of the equation. If the client can come up with an incentive for the vendor to renegotiate, such as a larger or longer contract, his chances of success are high, says Peter Bendor-Samuel, president and CEO of Everest Group Inc., a Dallas-based outsourcing consultant.

Based on his experience, Bendor-Samuel says clients often account for 50% to 80% of the problems in outsourcing contracts. For instance, a recent client outsourced its desktops to a vendor but kept its help desk, which is a key source of information about the state of all the company's desktops, in-house. The client also told the vendor how to run its desktop environment.

"You hire someone who's better than you, then you rob them of that expertise by telling them how to do it," says Bendor-Samuel.

### Perception Is Everything

At Johns Manville, IT workers had spent years complaining about (I)Structure's service. But when Rideout decided to renegotiate the contract and began reviewing the facts, he saw that most of the service levels were being delivered. He also learned that many of the complaints being leveled by his own company's IT employees weren't really legitimate. But he still couldn't just walk away from them.

Most of the complaints were "I wouldn't have done it that way"-type comments, often from the people who did the work before and were reassigned to other IT work after it was outsourced, says Rideout. So he had the IT workers help draft a list of service levels and then explained that if the levels were met, those workers would need to stop complaining to both management and the outsourcer and let (I)Structure's employees do the work the way they saw fit.

(I)Structure was pleased with the renegotiation because its contract, which was due to expire in a year, was extended for four more years, and the



**How to renegotiate troubled relationships and live happily until a contract's end. By Melissa Solomon**

# OUTSOURCING
# Overhauls

company gained very clear, detailed service levels, says Craig Nelson, vice president of sales and service management at (i)Structure. "It's all about expectations," says Nelson.

But getting to the negotiation table wasn't exactly easy, recalls Rideout.

After agreeing to talk about a new contract, Rideout went back to (i)Structure with revised provisions for new service levels and penalties, as well as a more competitive price. "I know they were surprised," he says. "It was the first time they had seen a contract like that."

But he held his ground. He showed (i)Structure benchmarks from Everest Group that listed the prices of similar IT outsourcing contracts between other clients and vendors. He said that at the end of the year, when the contract expired, he would put out a very detailed, competitive request for proposals from other vendors. Rather than compete with other vendors, (i)Structure renegotiated for the new contract.

## Don't Fear Change

Rideout notes that it's also important to know when to let go of a vendor. In a different deal where a vendor wasn't willing to budge on price, Rideout waited out the life of the contract, made the vendor compete for the new one and then outsourced only 15% of the company's IT services to that vendor, awarding the remaining 85% to a competitor.

## TIPS FOR RENEGOTIATING

## AFTER THE INK IS DRY

John Davis, vice president of IT, purchasing and engineering at National Steel Corp. in Mishawaka, Ind., approached his contract problems differently, switching vendors before the first contract was up.

"We wrote the case study on how not to do outsourcing," says Davis. "It was a struggle, but we learned a lot."

In 1999, National Steel was outsourcing virtually all of its IT services to SHL Systemhouse Inc. Critical service levels, such as application availability and help desk first-call resolution, were continually missed, and problems had been escalating beyond control. National Steel and SHL had spent two years trying to shore up the relationship, but to no avail, according to Davis.

Finally, National Steel put out a request for quotes, terminated SHL's contract in accordance with its clause

for nonperformance and awarded the work to Plano, Texas-based Electronic Data Systems Corp. There was no contract kill fee involved. Rather, Davis says, National Steel invoked the termination provision of its original contract.

But switching vendors can be complicated and expensive, cautions Dean Davison, a Los Angeles-based outsourcing analyst at Meta Group Inc. Companies aren't just turning over a piece of hardware or software; they're turning over complex systems and processes. But as outsourcing matures and becomes more standardized, it may become easier for clients to switch vendors, he notes.

Also, as IT managers have learned that outsourcing is not a fix-all for their problems, and vendors have grown more flexible and customer-centric, satisfaction levels have soared, Davison says. Judging from his work with clients, he says that about 75% of clients are reasonably satisfied with their outsourcing arrangements.

"Things aren't perfect," says Davison. "But they've definitely improved." ⬛

*Solomon is a freelance writer in New York. Contact her at melissasolomon@@hotmail.com.*

## ASK THE EXPERTS

For companies and individuals that offer outsourcing consulting, check out this list of contacts:
⬛ QuickLink: 32278
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# Creating the Contract

### 1. Work with a reasonable-size contract. Signing a standard three- to five-page vendor contract can be the kiss of death, but a contract the size of a phone book can be just as damaging.

In an old contract between National Steel and SHL Systemhouse, there were 500 service levels, which racked up costs and took a long time to track, says John Davis, vice president of IT at National. Now, under a contract with EDS, he works with about 40 performance indicators – about the same number he tracked when IT was run in-house.

### 2. Define service levels. Davis also warns against process-based service levels. Rather than telling the outsourcer how to do the job, explain the outcome you expect. Otherwise, all the important service levels may be met, but the project can still fail to meet customers.

Davis also advises mixing up internal, external and other service levels to ensure satisfac-

tion from all perspectives. One approach is to use internal IT measures, such as system availability; external metrics, such as help desk response time; and customer satisfaction levels, which can be derived by sending out quarterly surveys to 50 randomly selected customers.

Such qualitative metrics can be especially effective because they force vendors to develop relationships with end users rather than just meet quantitative service levels.

### 3. Review and modify service levels every year. Contracts should include a stipulation for annual review and modification of service levels, along with an expectation that those levels will improve over time, says Davis. With the pace of change in IT, it's easy for ser-

vice levels to become outdated or obsolete. For instance, National Steel has a mainframe services contract that once included a service level to measure tape mounts (the data stored on tapes). But when virtual storage came along and tapes became obsolete, Davis dropped it.
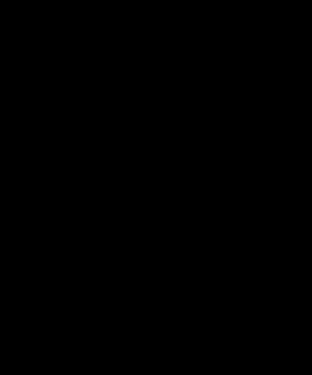
### 4. Include adjustments for failing to meet service levels. IT managers need to devise consequences for missing service levels, Tom Rideout, senior manager of technology development at Jokos Manville, reviews service levels monthly and bases financial penalties on a percentage of his outsourcing vendors' monthly revenues from their contracts with Johns Manville. Those penalties increase with each missed service level.

The contract also requires the outsourcer, (i)Structure, to determine why the level was missed and how to prevent the same problem in the future. That's a manpower drain, and as a result, (i)Structure has missed only a couple of service levels in the past three years, says Rideout.

Davis likes to use what he calls "attention adjustments." National's outsourcing contracts state that the first time a service level is missed, the vendor's account manager has to write a report explaining what happened and what he's going to do about it. The next time, a vice president or regional manager has to prepare the report.

This penalty-escalation clause affects high-level positions up to the CEO, says Davis. Making EDS's CEO fly out to National Steel to explain why a service level was missed would likely be far more effective at getting the vendor's attention than a $20,000 penalty, he says. To date, that hasn't happened.

*— Melissa Solomon*

company gained very clear, detailed service levels, says Craig Rideout, vice president of sales and service management at GJStructure. "It's all about expectations," says Rideout.

But getting to the negotiation table wasn't exactly easy, recalls Rideout.

After agreeing to talk about a new contract, Rideout went back to GJStructure with revised provisions for new service levels and penalties, as well as a more competitive price. "I know they were surprised," he says. "It was the first time they had seen a contract like that."

But he held his ground. He showed (GJStructure benchmarks from Everest Group that listed the prices of similar IT outsourcing contracts between other clients and vendors. He said that at the end of the year, when the current contract expired, he would put out a very detailed, competitive request for proposals from other vendors. Rather than compete with other vendors, GJStructure negotiated for the new contract.

### Don't Fear Change

Rideout notes that it's also important to know when to let go of a vendor. In a different deal where a vendor wasn't willing to budge on price, Rideout waited out the life of the contract, made the vendor compete for the new one and then outsourced only 15% of the company's IT services to that vendor, decreasing the remaining 85% to a competitor.

John Davis, vice president of IT, purchasing and engineering at $3 billion National Steel Corp. in Mishawaka, Ind., approached his contract problems differently, switching vendors before the first contract was up.

"We wrote the case study on how not to do outsourcing," says Davis. "It was a struggle, but we learned a lot."

In 1999, National Steel was outsourcing virtually all of its IT services to SHL

### TIPS FOR RENEGOTIATING

- Create a competitive environment. Issue a request for proposals for a new contract, or present the vendor with pricing benchmarks, or other deals.

- Work the terms of your service contract. If you have to terminate systems or an access penalty, take advantage of those rights.

- Offer added-value bonuses. If the vendor is willing to rework the contract.

- Explain that you're initiating with reasons the vendor won't like, this way you as a client will achieve.

- Turn to other clients to see if the outsourcer has a history of being up to contract terms.

### AFTER THE INK IS DRY

- Be sure to change plans after you seal a signed. Contract negotiations can and should be adversarial to that both sides get a fair deal. But when the partnership begins, the vendor and client need to build a spirit of alliance.

- Tell your outsourcer about an added IT environment once you reach a confidentiality agreement. Some companies resist full disclosure, for security or proprietary reasons, but the ambition to work effectively if needs to know everything.

- Bring outsourcers to the main contract table. If they're running your IT department, they need to be involved in corporate planning.

Systemhouse Inc. Critical service levels, such as application availability and help desk first-call resolution, were continually missed, and problems had been escalating beyond control. National Steel and SHL had spent two years trying to shore up the relationship, but to no avail, according to Davis.

Finally, National Steel put out a request for quotes, terminated SHL's contract in accordance with its clause

for nonperformance and awarded the work to Plano, Texas-based Electronic Data Systems Corp. There was no contract kill fee involved. Rather, Davis says. National Steel invoked the termination provision of its original contract.

But switching vendors can be complicated and expensive, cautions Dean Davison, a Los Angeles-based outsourcing analyst at Meta Group Inc. Companies aren't just turning over a piece of hardware or software; they're turning over complex systems and processes. But as outsourcing matures and becomes more standardized, it may become easier for clients to switch vendors, he notes.

Also, as IT managers have learned that outsourcing is not a fix-all for their problems, and vendors have grown more flexible and customer-centric, satisfaction levels have soared, Davison says. Judging from his work with clients, he says that about 75% of clients are reasonably satisfied with their outsourcing arrangements.

"Things aren't perfect," says Davison. "But they've definitely improved." ◆

*Solomon is a freelance writer in New York. Contact her at melissasolomon2@hotmail.com.*

## Creating the Contract

### 1. Work with a reasonable-size contract.
Signing a standard three- to five-page vendor contract can be the kiss of death, but a contract the size of a phone book can be just as damaging.

In an old contract between National Steel and SHL Systemhouse, there were 500 service levels, which jacked up costs and took a long time to track, says John Davis, vice president of IT at National. Now, under a contract with EDS, he works with about 40 performance indicators – about the same number he tracked when IT was run in-house.

### 2. Define service levels.
Davis also warns against process-based service levels. Rather than telling the outsourcer how to do the job, explain the outcome you expect. Otherwise, all the important service levels may be met, but the project can still fail to meet expectations.

Davis also advises messing up internal, external and other service levels to ensure satisfaction from all perspectives. One approach is to use internal IT measures, such as system availability, external metrics, such as help desk response time; and customer satisfaction levels, which can be derived by sending out quarterly surveys to 50 randomly selected customers.

Such qualitative metrics can be especially effective because they force vendors to develop relationships with end users rather than just meet quantitative service levels.

### 3. Review and modify service levels every year.
Contracts should include a stipulation for annual review and modification of service levels, along with an expectation that those levels will improve over time, says Davis. With the pace of change in IT, it's easy for ser-

vice levels to become outdated or obsolete. For instance, National Steel has a mainframe services contract that once included a service level to measure tape mounts (the data stored on tapes). But when virtual storage came along and tapes became obsolete, Davis dropped it.

### 4. Include adjustments for failing to meet service levels.
IT managers need to devise consequences for missing service levels, says Rideout, senior manager of technology development at Jabra Marvelle, owners service level monthly and bases financial penalties on a percentage of the outsourcing vendors' monthly revenues from their contracts with Johns Marvelle. Those penalties increase with each missed service level

The contract also requires the outsourcer, GJStructure, to determine why the level was missed and how to prevent the same problem in the future. That's a manpower drain, and as a result, GJStructure has missed only a couple of service levels in the past three years, says Rideout.

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– *Melissa Solomon*

# Tooting Your Own Horn

**Marketing IT in-house boosts workers' confidence and users' trust. By Kathleen Melymuka**

A YEAR AGO, Catherine Brune realized that her IT group was being left out of the loop.

"Our business partners would decide on some software, and we'd get stuck in the middle and know it was going to create havoc, but by then it would be too late," says Brune, vice president of technical shared services/field support at Allstate Insurance Co. in Northbrook, Ill. "We were never at the table. The business had already decided, and we'd be stuck trying to integrate it. We were letting the horse out of the barn way too often because we didn't have a good connection with our business partners."

She decided it was time to do a little marketing.

Gaining control of their destiny is just one reason IT managers market IT within the corporation. Marketing can dispel images of IT as a data processing department and create a new perception of it as an equal business partner. Marketing builds confidence in IT's credibility, the key to getting things done.

"If IT has credibility, I can get a decision over the hurdle faster. If I don't have it, it can take months," says Dennis Klinger, CIO at Florida Power & Light Co. in Juno Beach, Fla.

Marketing also helps customers look back at the successful things IT has done.

"It's too easy to forget even major initiatives as time goes by, and those have a lifetime cost attached to them," says Scott Heintzeman, CIO at Carlson Hospitality Worldwide in Minneapolis.

The goal of marketing is to integrate IT into the business, says Jean Holley, CIO at USG

Corp. in Chicago. "The [ideal] IT organization is one where, in any kind of situation, the business people automatically think, 'We should have IT here,' rather than calling IT once they've got it all figured out," she says.

But marketing isn't the same as selling, Klinger notes. "It really has to do with good communication and education," he says. "The business can put money into plans, equipment, sales forces and see quantifiable results. With some IT projects, it's harder to see."

When they have to get buy-in on their priorities, successful CIOs market to the CEO and other corporate decision-makers, to key business customers and sometimes even to technologists. Regardless of who the audience is, take the message to them, Holley says.

Holley takes her senior business partners to lunch or, if they don't have time for that, a breakfast or early-morning coffee. She'll even share a car or train commute to get an hour with someone. "Let them talk about their day and why it's out of control," she says. "Then you get a real good feel of where their business challenges are."

But don't be a hero. Your marketing effort shouldn't depend solely on you. "Make sure people in your organization into the meetings and contribute," Holley says.

Brune recently delegated some marketing efforts to a group of business relationship managers who are located with business units but report to her. "They know the business community's needs and dreams," she says. One, for example, is explaining how wireless technology can support his business partner's strategy. Another is helping to pull disparate call center technologies into one consolidated view.

Don't forget to keep the top brass informed about the plans you make with business partners, Heintzeman says, or you may find yourself sucked into a project that's not a corporate priority.

When Holley or her group is pitching to her IT steering committee, they often turn put on a "show and tell" of hands-on demos that involve the business side. "Sitting in meetings, you can get PowerPointed to death," she says. "But it's hard to go to sleep when you're holding a wireless device and watching your own data appear on the screen."

As you fine-tune your marketing effort, be aware that certain approaches can backfire. "Don't look like you're peddling systems," says Klinger. "Make people understand that this is for the good of company."

Do your homework, he suggests. Know exactly what you're capable of, and don't overpromise. "You really want to have your facts and tell the truth," Klinger says.

If you're not well prepared and you get called on something, it may look like you weren't being candid. "You don't want to be labeled as a snake oil salesman," he says. "Make sure you know how value is created in the company and really focus on that."

And be careful about return on investment claims, Heintzeman says. Most projects involve many parts of the organization, and you have to share credit. "You're better off to remind the group what you've all accomplished," he says. "The best sound bite for IT is 'on time and on budget.'" ❖

*Melymuka is a Computerworld contributing writer. Contact her at kmelymuka@earthlink.net.*

Jean Holley, CIO, USG Corp.

Scott Heintzeman, CIO, Carlson Hospitality Worldwide

## Selling Points

Some things CIOs can market include:

- Milestones reached in long-term initiatives
- Records of on-time and on-budget projects
- Uptime for key systems
- Responsiveness of help desk and training efforts
- New systems and services
- IT's ability to support business improvements

# Beating the Clock

*Time pressures stifle creativity in IT, but there
are tricks to getting imagination to bloom*

Many IT people swear they do their
most creative work under pressure. And
many IT managers use pressure as a
management technique, believing it will
spur creativity. But research published
in August's Harvard Business Review
indicates that the opposite may be true.
Constance N. Hadley, a doctoral student
in organizational behavior at Harvard
Business School; Teresa M.
Amabile, professor of busi-
ness administration; and
Steven J. Kramer, an inde-
pendent researcher in Way-
land, Mass., studied the
relationship between time
pressure and creativity by
tracking daily diary entries
made by 177 employees —
many of them in IT — on 22
different project teams. Hadley talked
with Kathleen Melymuka about how
time pressures in IT stifle creativity and
what IT managers can do about it.

**Your research is all about creativity, on first,
let's define it.** Broadly, we define cre-
ativity as "novel and useful solutions
to a problem." For this project, we in-
cluded diary mentions about coming
up with insights, discovering some-
thing, brainstorming, even clearly
thinking about a problem.

**Time pressure is a huge issue in IT. Were
many of your research subjects doing
technology work?** A substantial portion
were software and hardware engineers
and computer analysts, and one com-
pany we studied was an IT consulting
company.

> **Creativity takes
> the the analogy of
> juggling ideas.**
>
> CONSTANCE N. HADLEY, DOCTORAL
> STUDENT, HARVARD BUSINESS SCHOOL

**Why so many IT managers think that people
are more creative under time pressure?**
Our hypothesis is that people confuse
productivity with creativity. Research
has shown that people do more things
when they're under time pressure. In
our project, they worked longer hours
and listed more in the "work done"
category. But that's not the same as
actually being creative.
Also, there's the myth of
divine inspiration: When
the chips are down, people
come up with brilliant solu-
tions. But neither our study
nor the biographies of cre-
ative geniuses support that.
Instead, creativity seems to
be much more about a long
process of playing with
ideas and having time to work on
them, taking some time away, then
working on them some more.

**So time pressure just doesn't work?** I don't
want to say it never works. But typical
conditions don't foster it. Typically, it
feels more like a treadmill.

**Why does time pressure adversely affect
creativity?** Creativity takes time. We use
the analogy of juggling ideas. It takes
time to come up with the balls to jug-
gle in the air and time to juggle them.
It takes time to explore solutions. Also,
it seems that in the decision-making
process, under time pressure, people
shut down a lot of the breadth of cog-
nitive thinking. They don't explore as
many options as they should, and they
don't pay sufficient attention to the
negative aspects, so there's a cognitive
dimension as well.

**But there are exceptions. What
makes for creative thinking under
the gun?** We call that "on a mis-
sion." We found one of the biggest
things was a sense of focus, both men-
tally and physically.
We saw people on a mission
sequester themselves with maybe
one other person alone in a room
for the day, or even work from
home to give themselves the ability

to be free from interruption and dis-
traction. The second big factor is to
really buy into the importance of the
mission. We saw as an example the
Apollo 13 crew and the support team
in Houston [which created a life-saving
solution under intense time pressure].
You really need to think what you
are doing is worth the time pressure.
It has to be meaningful and urgent
enough for you to want to devote your
time to it.

**And that's not often the case?** No. In
contrast to that, we more often see
the treadmill, where deadlines seem
arbitrary and imposed and don't make
any sense.

**The examples in the article seem to indicate
an inverse correlation between creative
work and group activity. Did you find
that?** People tended to work creatively
by themselves or with one or two
others. We think that's because multi-
ple people means multiple agendas
are present, so you don't have that
focus. But it doesn't necessarily mean
large groups can't be creative. Look
at Apollo 13.
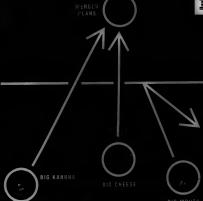
**What can IT managers do to minimize the
effects of time pressure on creativity?** In
the ideal world, avoid time pressure.
That can't be understated. In many
cases in our study, the teams felt from
the beginning that they were behind
the eight ball and there was not
enough time or resources to do what
they had to do. In that situation, the
best you can do is try to create a sense
of urgency and allow the team mem-
bers to find time to focus. There is
research that shows that engineers
who had a couple hours quiet time
every week got more done.

**Is there anything an IT worker can do in a
pressure-cooker project to foster his own
creativity?** If you can't change the coo-
straints, follow the path many of us
have used. Find some private time to
get away, work on your idea at night,
do your study took and protect your time as
best you can. Some took early morn-
ings away from other work. Some even
hid in conference rooms where others
couldn't find them. One disconnected
the phone. There may be ramifications
if the team needs your help, but if it's
the only way to solve a problem cre-
atively, you might want to consider
it. To the extent you can engage in
problem solving and internalize the
urgency, you're more likely to have
energy to put toward being creative. ◗

*Melymuka is a Computerworld con-
tributing writer in Duxbury, Mass. Con-
tact her at kmelymuka@earthlink.net.*

# "Dear Career Adviser:

*I have a strong background in supply chain management and have been working mostly in the health care and pharmaceutical industry. I started out as a programmer*

and now worked as a systems integration consultant for warehouse tracking applications. I am interested in wireless and handhelds, and I have thought about RFID. Is this a good area to move into?
— RADIO FREQUENCY

**Dear Radio Frequency:**

RFID stands for radio frequency identification, a technology that uses RFID tags, which act as responders that don't require direct contact or line-of-sight scanning. Companies are using RFID in an

effort to improve bar-code technology to track, locate and secure items in the supply chain, and to help with anti-counterfeiting measures and security, says Paul Drzaic, vice president of Alien Technology Corp., an RFID company in Morgan Hill, Calif.

RFID holds promise in reducing the cost of handling items.

Jobs in RFID include integrated circuit designers, who work on RFID tags; circuit designers and RF engineers, who work with tag readers; networking engineers, who

enable readers to communicate via protocols such as TCP/IP or Bluetooth; and data-base applications developers, who tie massive amounts of data together.

For more information, check out *RFID Journal* (www.rfidjournal.com) and the AutoID Center (www.autoidcenter.org), an industry-funded research program.

# "Dear Career Adviser:

*I am working to create a position at my company as an information security officer. I have worked here in IT for over five years, as a manager of security administration, in change management, IT auditing and in project management of security projects. I have a bachelor's in electronics engineering and a master's in computer information management.*

*I am working with the vice president of technology services, without much luck in convincing her of the need for this role.*
— WHAT'S NEXT?

**Dear Next:**

Although the Information Technology Association of America in Arlington, Va., re-

cently highlighted the importance of IT security in its "Bouncing Back: Jobs, Skills and the Continuing Demand for IT Workers" study in May, security jobs are often deastrixed and not broken out as a separate function. In fact, the study identified security issues as "most essential" for jobs involving network design and administration, which are less important for enterprise systems engineers and database administrators.

However, both the size and type of employer appear to affect the career path of security professionals, with small and midsize IT companies employing about twice as many security professionals as non-IT companies.

In other words, if you work at a large technology firm that develops and sells software or networking products, this is where your security expertise is most likely to be in highest demand. **✦**

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# IT Is the Treasure At Capital One

**What are the most critical systems supported by your department?** "We design, build, operate and maintain the computer and telecom infrastructure that enables Capital One to perform its customer-focused operations, such as customer care, the call centers and customer transactions. We provide end-user support on the desktop [and] back-end data warehouses and transaction processing systems."

**Can you describe the pace of the work?** "It's pretty well balanced. We have things that are more planned and things that are more responsive to the business environment. So it's steady, with some interesting spikes."

**What might cause a spike?** "We might want to take advantage of a new window of opportunity, like a marketing program that looks promising and that we want to launch quickly."

**Can you describe the overall culture of IT?** "It's very collaborative and entrepreneurial. It's definitely an empowering, fast-moving type of culture, where you have the freedom to create. The company expects you to perform; the bar is pretty high, with challenging types of work.

"But it's also rewarding. You see the impact you're having on the business, so there's a real sense of accomplishment. We have a strong identification with

the business; there are no IT projects, just business projects. I've worked in other places, and IT is 'them' and business is 'us,' and it's absolutely not like that here."

**What do you like most about how career advancement and training are handled?** "As for training and career advancement, it's based on both the things you need to be successful from a competency perspective, as well as what you need to do in your job. We've got 23 major competencies [for which] we want

to make sure we have the right mix and depth of knowledge in the organization. We have dedicated technology training called ITU [Information Technology University], which focuses on technology skills as well as curriculum that's business-related."

**What do you think makes your company's IT department unique?** "We do a lot in the community in terms of helping kids build computing infrastructures and helping them operate it. We put in a

computer and network infrastructure at the Sacred Heart Center, in a not-so-nice neighborhood in Richmond, that takes care of kids at risk. Kids can come in after school and have a place to work and get Internet access and be safe and learn."

**What aspect of work do you look forward to each day?** "The next challenge. Remember the American Tribune to Heroes telethon? Capital One, and specifically technology services, put together the infrastructure for that telethon. We made the largest virtual call center in the world in less than four days, combining 77 call centers at different banks, and 7,000 Capital One associates manning those call centers. That's the company mind-set: There's nothing we can't achieve if we put our minds to that challenge. That's what brings me in here each day."
— *Mary Brandel*
brandelk@attbi.com

## Capital One Financial Corp.

**Interviewee:** Eric Davis, vice president of the technology services department

**Type of business:** Credit card marketer

**Main location:** Falls Church, Va.

**Number of IT employees:** 1,200 in technology services; 2,400 in all of IT

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Subscription rates: U.S. $66/year; Canada,
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$250/year; all others, $295/year

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# Web Services

users were left with just as many questions as answers.

"It confirmed to me that we're not the only ones who are confused," said Ensign, who gave a user presentation at the forum. "I think everyone outside of the small groups of security specialists who have been working on this problem are confused. We don't yet see a clear story of what the security problems are, the framework for how the security will be provided and how the individual efforts fit together."

Kevin Cronin, chief technical architect at Mass Partners Inc., a Boston-based services firm that's owned by NEC Corp., said its clients in the financial services industry are confused about the overlap of some of the proposed security standards. And until the issues are resolved, he said, the use of Web services may be limited at the retail banking level.

Advanced security issues such as rights management are of great concern to financial services firms as well as to publishers such as LexisNexis, which manages content from a wide range of sources and must control access to meet its business obligations to its content providers and customers. Ensign said he now sees potential overlap among three standards — Security Assertion Markup Language, Extensible Access Control Markup Language and Extensible Rights Markup Language.

"That's an expensive problem to solve if we have to invent our own solution to every single permissions issue as it comes along," Ensign said. He added that if standards are implemented by vendors in a clear and consistent way, "our customers and our external service providers can afford to implement their end of any of these service bargains."

"Having been burned several times, I still need something that's multivendor and interoperable and not driven by one or two vendors, even if they're really good ideas," agreed Stephen Whitlock, a Seattle-based enterprise security architect at The Boeing Co. "We need some assurance that it's going to work, that we can switch vendors if we need to."

## Seeking Standards

Whitlock said he looks forward to the day when standards are finalized to address data security at the endpoints of a transaction, since Secure Sockets Layer protects data only during transmission.

But standards are just one piece of the Web services puzzle. Gordon Coulson, a systems architect working for Canada's Fisheries & Oceans office in Vancouver, British Columbia, said addressing the technical part may be easy compared with getting people to agree on the best approach.

Coulson said he hopes he can persuade the agency to consider using XML and SOAP



## Alphabet Soup of Web Services Standards

*Some of the key Web services security standards and proposed standards discussed at last week's XML and Web Services Conference included:*

SAML (Security Assertion Markup Language) An XML-based specification that defines a framework for exchanging authentication and authorization information.

WS-Security (Web Services Security) A proposed standard that deals mainly with security models and technologies and is in the hands of Oasis for formalization as Web services. Includes definition as a standard set of SOAP extensions, or message headers, that can be used to implement integrity and confidentiality in Web services applications.

XKMS (XML Key Management Specification) An XML-based standard for registering and distributing encryption keys over the Web.

XACML (Extensible Access Control Markup Language) An XML-based standard for managing access control and enforcing authorization policies, such as what users can do, when and under what circumstances.

XACML (Extensible Access Control Markup Language) An XML-based standard for managing access control and enforcing authorization policies.

XrML (Extensible Rights Markup Language) A standard method for securely specifying and managing rights and conditions for digital content and Web services.

to get its disparate legacy systems to talk to one another. Right now, the agency's developers use a variety of technologies, including Java, Microsoft Corp.'s .Net and Macromedia Inc.'s ColdFusion.

An IT specialist at a U.S. government agency, who asked that she not be named, said that she's investigating Web services to help with data inte-



[The forum] confirmed to me that we're not the only ones who are confused.

CHET ENSIGN, LEXISNEXIS

gration of disparate enterprise resource planning systems. But right now, her agency's chief skills are in Cobol and PowerBuilder.

"They talk about Web services being easy," she said. "But the reality is it requires an entirely different set of skills from the ones that we're used to."

The complexity of the problem that Web services aim to address wasn't lost on some participants. With layers of standards continually being introduced, some users are moving forward cautiously.

"They say the infrastructure is simple to build. I'm not convinced yet," said David Rizzo, a project manager for portal technologies at Novartis Pharmaceuticals Corp. in East Hanover, N.J.

Patrick Gannon, president and CEO of OASIS, advised companies to participate in pilots now so they will be ready to do more extensive projects as Web services standards mature over the next two years. ▶

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## Defining Web Services Is No Easy Task

BOSTON

One presenter at last week's XML, Web Services One Conference drew a laugh when she told attendees, "Ask five people to define Web services and you'll get at least six answers."

Even though Web services has been one of the technology industry's hot buzzwords for some time, that doesn't mean a clear and succinct definition has emerged.

Here's a sampling of definitions that were tossed out last week:

■ "Web services standards and technologies allow us to describe and deploy applications or services on a network in a consistent way so that they can be discovered and invoked in a secure and reliable manner. A Web service is an application that uses those standards and technologies."
— **Bob Sutor, director of e-business standards strategy at IBM**

■ "What Web services are about is machine-to-machine communication. The base technology is XML, and XML schema. If we want to narrow it to what types of Web service specifications are you going to be most interested in supporting — obviously SOAP, WS-Security, XKMS (XML Key Management Specification)."
— **Phillip Hallam-Baker, chief scientist at VeriSign Inc.**

■ "Any application that exposes its information processing or serves up information in a reusable data format using common Web technologies."
— **J.P. Morgenthal, chief services architect at Software AG**

■ "Web services are loosely coupled software components delivered over Internet standard technologies. You must also use at least one of WSDL (Web Services Description Language), SOAP and/or UDDI (Universal Description, Discovery and Integration)."
— **Daryl Plummer, an analyst at Gartner Inc.**

■ "To me, when we're talking about a Web service, we're talking about taking some kind of application or some set of applications and being able to make them available to people using the Internet as the transport, as the communications mechanism between the application when it's calling and the other application which is responding to the call and delivering information."
— **Chet Ensign, senior director of architecture and development services at LexisNexis**

■ "It's important to do SOAP, WSDL and UDDI as the core of any Web services definition, as they are the key protocols. I can create software to transport XML over a socket on the Internet, but is that an interoperable Web service? No, it is not. The most compelling part of Web services is interoperability and the low technical barriers to entry, which are in turn driven by standards."
— **Kevin Cronin, chief technical architect at Mass Partners**

— *Carol Sliwa*

FRANK HAYES • FRANKLY SPEAKING

# IT Transformed

I**T'S LABOR DAY, SO LET'S TALK ABOUT** the future of IT work. Maybe that doesn't sound like something with much of a future. These days, unemployment among IT people in the U.S. is right up there with the overall unemployment rate. There's lots of talk that corporate IT staffs will remain gutted even after the economy recovers. And as IT is squeezed until it's unable to do anything but the most basic janitorial functions — fix leaks in the plumbing, patch up the broken Windows — is the future of work in IT shops a painful downward spiral into irrelevance?

Maybe. But I'm betting on transformation.

After all, every time someone has predicted the demise of what IT people do — by way of automation, outsourcing, downsizing or some magic technology bullet that's supposed to make IT professionals obsolete — something has always happened to change the game and make IT more critical than ever.

Remember, minicomputers were supposed to put data processing in the hands of department-mental users and wipe out the data center. So were PCs. Packaged enterprise applications were going to make big programming projects obsolete. Fourth-generation programming languages were going to be so easy to use, no one would need programmers at all. Simplified systems designed for lights-out operation would make systems administrators a thing of the past. Easy-to-use software would make the help desk unnecessary.

So, what happened? Client/server happened, that's what — and LANs, Windows, the Web, terabyte data warehouses, global e-commerce and the realities of SAP and Siebel implementations. Instead of becoming irrelevant, IT shops just become more and more essential.

Once, IT's job was to provide data to help run the business, run networks to collect that data and write programs to process that data. IT people still do that.

But now IT also builds Web sites to sell products, manages wireless communications to support salespeople, links suppliers to warehouses and customers via real-time supply chains, distributes human resources information on intranets and enforces sexual harassment policies with Internet filters.

IT used to do data. Now IT does business.

That's no coincidence. Business used to run on information — the data in data processing. Now business runs on communications — with suppliers and customers, and between sales and manufacturing and executive management, all on the networks and systems IT builds and maintains. The more the business depends on the communications technology IT provides, the more essential IT becomes.

And in the future? Business will run on change. And IT's work will be transformation: rapidly reconfiguring processes to let users adapt to changing markets, supply conditions, customer needs and business requirements.

Sure, IT does that now. But it will all have to happen faster and more effectively. That's where the competitive edge will come from: IT's ability to execute on the need to transform the business.

To do that, IT itself will have to be transformed. Some IT practices and job titles will go the way of punched cards, Cobol and green screens. Programming may not survive as we know it, but applications will be updated continually to solve more business problems more effectively. Automated operations will let IT efforts shift to dealing with network capacity and security issues. And support will focus on preventive maintenance of both systems and users, because there will be no time for bugs, confusion or other help desk problems.

That's the future of IT work. If you love the job you have today, you may not like it. If you fear change, you'll hate it.

But unless someone comes up with a more effective way to enable business transformation, better plan on having IT — transformed — around for a long time. ▶